

حمل الآن

مجانا وحصريا

# المراجعة رقم (1)

## الترم الثاني





# Second Term Questions Bank



## Question 01

## Choose the correct answer

- 1 The probability of a certain event is ....  
 (a) 100% (b) 0 (c)  $\frac{2}{5}$  (d)  $\frac{1}{2}$
- 2 Which of the following is the image of the point (5,0) by rotation R (0,90°) ?  
 (a) (5,0) (b) (-5,0) (c) (0,5) (d) (0,-5)
- 3 A card carrying a letter from the word [School] was drawn randomly. What is the probability that this letter is [S]?  
 (a)  $\frac{1}{6}$  (b)  $\frac{1}{3}$  (c)  $\frac{2}{3}$  (d)  $\frac{1}{5}$
- 4 The image of the point (6,0) by reflection in Y- axis is...  
 (a) (6,0) (b) (-6, 0) (c) (0, 6) (d) (0, -6)
- 5  $(x^3 + x^2) \div x^2 = \dots\dots\dots$   
 (a) 0 (b) x (c) x + 1 (d) 2x + 1
- 6  $\sqrt[3]{a^{15}} = \sqrt{\dots\dots\dots}$   
 (a)  $a^5$  (b)  $a^{10}$  (c)  $a^{12}$  (d)  $a^{18}$
- 7 A trapezium with a middle base length of 6 cm and height 7 cm, then its area = ...cm<sup>2</sup>  
 (a) 13 (b) 42 (c) 30 (d) 26
- 8 If the side length of a rhombus is 5 cm and its height is 4 cm, then its area = ....cm<sup>2</sup>  
 (a) 9 (b) 18 (c) 20 (d) 40
- 9 Which of the following could be a probability of an event occurring?  
 (a) 1.3 (b) -0.5 (c) 150% (d)  $\frac{2}{3}$
- 10 What is image of the point (5, -4) by rotation R (0,180°) followed by rotation R (0,-90°)  
 (a) (-5, -4) (b) (-4, -5) (c) (-5, 4) (d) (4, 5)
- 11 The probability of the impossible event = .....  
 (a)  $\emptyset$  (b) 0 (c)  $\frac{4}{5}$  (d)  $\frac{1}{2}$





- 12 If the probability of an event occurring is  $\frac{1}{5}$ , the probability of it not occurring is .  
 (a)  $\frac{1}{5}$  (b)  $\frac{1}{4}$  (c)  $\frac{4}{5}$  (d)  $\frac{1}{3}$
- 13 Identity rotation is a rotation around the origin 0 by an angle of measure ....  
 (a)  $90^\circ$  (b)  $180^\circ$  (c)  $270^\circ$  (d)  $360^\circ$
- 14  $\frac{5x^2y - \dots}{5xy} = x - 3y$   
 (a)  $\frac{3}{5}xy$  (b)  $\frac{3}{5}yx^2$  (c)  $15x^2y$  (d)  $15xy^2$
- 15 If the A (3,5) is the image of the point A by translation  $(x,y) \rightarrow (x-1,y+2)$ , then the point A is .....  
 (a) (2,7) (b) (4,3) (c) (5,3) (d) (4,-3)
- 16 Which of the following points remains the same when reflected in the y-axis?  
 (a) (-7, 0) (b) (0, 3) (c) (-2, 5) (d) (4, -10)
- 17 What is the image of the point (a,b) by reflection in the y-axis ?  
 (a) (a,-b) (b) (-a,b) (c) (b,-a) (d) (-b,a)
- 18 What is the image of the point (2,-3) by translation 3 units upwards?  
 (a) (5,-3) (b) (5,-6) (c) (2,0) (d) (5,0)
- 19 A trapezium with a height of 5.4 cm and the lengths of its parallel bases are 8 cm and 10 cm , has an area of ..... Square centimeters.  
 (a) 48.6 (b) 54 (c) 97.2 (d) 432
- 20 The product of the length of two diagonals of a square is 16 square meters. What is its area in square meters?  
 (a) 4 (b) 8 (c) 32 (d) 128
- 21 What is the image of the point (a , b) by translation  $(x , y) \rightarrow (x+2 , y-3)$  ?  
 (a) (a-3 , b+2) (b) (a+2 , b-3) (c) (2 , -3) (d) (a+2 , b+3)
- 22 The image of the point ..... is the same point by reflection in the X-axis.  
 (a) (-3,0) (b) (0,2) (c) (-4,10) (d) (-2,-5)
- 23 In an experiment of tossing a fair coin once and observing the upper face, what is the probability of obtaining a head (H)?  
 (a) 1 (b)  $\frac{1}{2}$  (c)  $\frac{1}{4}$  (d) Zero
- 24  $\frac{1}{4}$  of the number  $4^8$  is .....  
 (a)  $4^2$  (b)  $4^4$  (c)  $4^6$  (d)  $4^7$



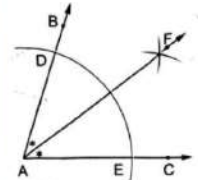


- 25 A trapezium with a middle base length of  $X$  cm and a height is equal to half the length of its middle base. What is its area in square centimeters?
- (a)  $x^2$  (b)  $\frac{x^2}{2}$  (c)  $\frac{x^2}{4}$  (d)  $\frac{x^2}{8}$
- 26 If the probability of a student success is 85 %, then the probability of failure is ....
- (a) 50% (b) 15% (c)  $\frac{1}{4}$  (d)  $\frac{1}{2}$
- 27  $|\sqrt[3]{-64}| = \dots\dots\dots$
- (a) 8 (b) 4 (c) 2 (d) -4
- 28 If  $x-4 > 1$  , then which of the following could be the value of  $x$ ?
- (a) 0 (b) -4 (c) 5 (d) 6
- 29 The sum of the probabilities of all possible outcomes of any random experiment =....
- (a) 50% (b) 1 (c) 0 (d)  $\frac{1}{2}$
- 30 In the experiment of forming a 2- different digit number from The set of numbers {1, 2, 3} , the number of elements in the sample space is ....
- (a) 3 (b) 6 (c) 4 (d) 9
- 31 The length of the middle base in a trapezium is equal to 15 feet and its height is 8 feet. What is it area?
- (a) 30 square feet (b) 120 square feet  
(c) 240 square feet (d) 23 square feet
- 32 In an experiment of tossing a fair coin three consecutive times and observing the upper face, how many elements are there in the sample space?
- (a) 2 (b) 4 (c) 8 (d) 16
- 33 In an experiment of rolling a fair die once, what is Probability of appearing a number less than 5?
- (a)  $\frac{1}{6}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{3}$  (d)  $\frac{1}{2}$
- 34 Which of the following numbers is in scientific notation?
- (a)  $11 \times 10^{11}$  (b)  $75 \times 10^{16}$  (c)  $-1.2 \times 10^{-3}$  (d)  $0.05 \times 10^{11}$
- 35 The probability of a certain event is .....
- (a)  $\frac{3}{4}$  (b) 100% (c) 0 (d)  $\frac{1}{2}$





- 36 If a rhombus with diagonal lengths of 6 inches and 10 inches, then what is its area?  
 (a) 30 square inches (b) 60 square inches  
 (c) 16 square inches (d) 120 square inches
- 37 The rotation  $R(0, 180)$  followed by the rotation  $R(0, 180)$  is equivalent to the rotation ....  
 (a)  $R(0, 180)$  (b)  $R(0, 360)$  (c)  $R(0, 90)$  (d)  $R(0, -90)$
- 38 In an experiment of rolling a fair die once, what is the probability of appearing a prime even number?  
 (a)  $\frac{1}{2}$  (b)  $\frac{1}{3}$  (c)  $\frac{1}{6}$  (d)  $\frac{1}{4}$
- 39 If the area of a rhombus is  $18 \text{ cm}^2$ , then the product of its diagonal lengths is ..... $\text{cm}^2$   
 (a) 9 (b) 36 (c) 6 (d) 54
- 40 In an experiment of selecting one of the digits randomly from the number 6,543, what is sample space?  
 (a) {6, 543} (b) {65, 43} (c) {6, 5, 4, 3} (d) {65, 43, 54}
- In the opposite figure :
- 41 When bisecting  $\angle BAC$  with a compass makes you find that:  
 $m\angle BAF = \dots\dots\dots$   
 (a)  $m\angle BFA$  (b)  $m\angle EAF$  (c)  $m\angle EFA$  (d)  $m\angle BAC$
- 42 What is the image of the point (5, -3) by reflection in the X-axis followed by reflection in the Y-axis?  
 (a) (-5, 3) (b) (5, 3) (c) (-5, -3) (d) (-3, -5)
- 43 A trapezium with an area  $100 \text{ cm}^2$  and a middle base length 8cm, then its height = ..... cm  
 (a) 8 (b) 10 (c) 12 (d) 12.5
- 44 Selecting a ball from a basket containing 6 identical balls, all are blue is ....  
 (a) not a random experiment (b) a simple event  
 (c) a random experiment (d) an impossible event
- 47 What rotation makes the image of the point A (2, -5) become the point A' (-5, -2)?  
 (a)  $R(0, 90^\circ)$  (b)  $R(0, -90^\circ)$  (c)  $R(0, 180^\circ)$  (d)  $R(0, 360^\circ)$
- 48 If the area of a square is  $50 \text{ cm}^2$ , then the length of its diagonal = .... Cm  
 (a) 10 (b) 100 (c) 25 (d) 15





- 49 In an experiment to form a 2-digit number formed from different digits from the set {2,6,3}, how many elements are there in the event that expresses "the resulting number is even" ?  
 (a) 2 (b) 3 (c) 4 (d) 6
- 50 What is the image of the point (3,-9) by rotation  $R(0,180^\circ)$  followed by rotation  $R(0,-90^\circ)$ ?  
 (a) (-3,-9) (b) (-9,-3) (c) (-3,9) (d) (9,3)
- 51 What is the coefficient of a b in the expansion of the expression  $(4a - 5b)^2$  ?  
 (a) -40 (b) 50 (c) 20 (d) 40
- 52 Which of the following cannot be a probability of an event?  
 (a) 0.3 (b) -0.3 (c) 31% (d)  $\frac{1}{2}$
- 53 Which the following equals  $a^{-1} \times a^3$  ?  
 (a)  $a^2$  (b)  $a^4$  (c)  $\frac{1}{a^2}$  (d)  $\frac{1}{a^3}$
- 54 If the image of the point A (x, y) under rotation  $R(0,90)$  is A'(-2, -5) then  $x+y=...$   
 (a) -3 (b) -7 (c) 3 (d) 7
- 55 A box contains 28 apples, of which 8 are bad. If an apple is drawn randomly from the box, the probability that this apple is not bad is ...  
 (a)  $\frac{1}{7}$  (b)  $\frac{5}{7}$  (c) 1 (d)  $\frac{2}{5}$
- 56 A trapezium with parallel base of length 6cm and 10 cm and a height of 6 cm, then its area = ... $cm^2$   
 (a) 16 (b) 48 (c) 360 (d) 180
- 57 If  $x \in N$ , what is the solution set to the inequality  $-x > 3$ ?  
 (a) {-4,-5,...} (b) {4,5,6,...} (c) {-3} (d)  $\emptyset$
- 58 What is the image of the point (2, -3) by rotation around the origin with angle of measure  $90^\circ$  anticlockwise  
 (a) (-2, -3) (b) (3, 2) (c) (-2, 3) (d) (2, -3)
- 59 A ball is drawn from a box containing a set of identical balls numbered from 1 to 15, and the number drawn is recorded this is  
 (a) a random experiment. (b) not a random experiment  
 (c) an impossible event. (d) a certain event.





- 60 A rhombus with a side length of 15 cm and diagonal lengths of 18 cm and 24 cm. What is its height?  
 (a) 28.8 cm (b) 7.2 cm (c) 14.4 cm (d) 360 cm
- 61 A card carrying a letter from the word "NORHAN" is drawn randomly. What is the probability that this letter is "N"?  
 (a)  $\frac{1}{6}$  (b)  $\frac{1}{3}$  (c)  $\frac{2}{5}$  (d)  $\frac{2}{3}$
- 62  $1.82 \times 10^{-5}$  .....  $2.1 \times 10^{-5}$   
 (a) < (b) > (c) = (d) other
- 63 If B is an event from a random experiment and  $P(B)$  equals  $\frac{3}{4}$ , then  $P(\text{not } B)$  equals ..  
 (a)  $\frac{1}{4}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{2}$  (d)  $\frac{3}{4}$
- 64 If  $(x+2)(x-5) = x^2 + bx + c$ , then  $c =$ ....  
 (a) 10 (b) -10 (c) 7 (d) -7
- 65 What is the point whose image by rotation  $R(0, 180^\circ)$  is  $(-3, 1)$ ?  
 (a)  $(3, 1)$  (b)  $(1, 3)$  (c)  $(-1, 3)$  (d)  $(3, -1)$
- 66 What is the area of a square with side length of 6 feet?  
 (a) 6 (b) 12 (c) 36 (d) 18
- 67 If the sample space for a random experiment is  $S = \{3, 6, 7, 9\}$ , then the event of showing a prime number is ....  
 (a)  $\{3, 7, 9\}$  (b)  $\{3, 6, 7\}$  (c)  $\{3, 7\}$  (d)  $\{3, 6, 7, 9\}$
- 68 If a rhombus with diagonal lengths of 5 cm and 10 cm, then what is its area?  
 (a)  $50 \text{ cm}^2$  (b)  $25 \text{ cm}^2$  (c)  $100 \text{ cm}^2$  (d)  $15 \text{ cm}^2$
- 69  $\sqrt{36} + \sqrt{16} = \sqrt{\dots\dots\dots}$   
 (a) 100 (b) 120 (c) 52 (d) 10
- 70 If  $x+y=4$ , and  $x^2 - y^2 = 36$ , then what is the value of  $x - y$ ?  
 (a) 9 (b) 144 (c) 32 (d) 40
- 71 Which of the following equals  $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$ ?  
 (a)  $3 \times 7$  (b)  $7^3$  (c)  $3^7$  (d)  $3 + 7$
- 72 Which inequality expresses that two times the number  $x$  is greater than or equal to 5?  
 (a)  $2x \geq 5$  (b)  $2x > 5$  (c)  $x \geq 5$  (d)  $5x \geq 2$





- 73 Which of the following is the largest?  
 (a)  $5.6 \times 10^{-4}$  (b)  $7.8 \times 10^{-8}$  (c)  $3.6 \times 10^{-3}$  (d)  $5.8 \times 10^{-6}$
- 74 If the probability of success of a student is 70%. Then the probability of his failure is ....  
 (a) 0.03 (b) 0.3 (c) 0.07 (d) 0.7
- 75 What is the multiplicative inverse of the number  $\sqrt{\frac{9}{25}}$  in the simplest form ?  
 (a)  $-\frac{3}{5}$  (b)  $-\frac{5}{3}$  (c)  $\frac{3}{5}$  (d)  $\frac{5}{3}$

Question 02

Answer the following questions

- 1 In an experiment of tossing a fair coin twice consecutively and observing the sequence of heads and tails, write the sample space (S) and then express each of the following events:  
 1) A is the event "a tail appears on the first toss".  
 2) B is the event "a head appears on only one of the tosses".  
 3) C is the event "the same result appears on both tosses".
- 2 Find the diagonal length of the square whose area is equal to the area of a rhombus with diagonal lengths of 4 meters and 25 meters.
- 3 Find the quotient of :  $\frac{18x^3 + 12x^2 - 6x}{-6x}$
- 4 Calculate the area of a rectangle his length exceeds 3 units than his width, and his width equal x length Units.
- 5 Simplify to the simplest form :  $\frac{x^{-3} \times x^5 \times (-x)^4}{x^2 \times x^{-4} \times x^6}$ ,  
 then find the numerical value when  $x = 2$  ?





- 6 If a card is drawn randomly from identical cards numbered from 20 to 29. Find the probability that the card carries.

a) An even number      B) A number less than 22

- 7 If a fair coin was tossed 150 times and heads appeared 48 times, find the experimental probability of appearing:

1) Heads (H)      2) Tails (T)

- 8 Find in the simplest form the value of:

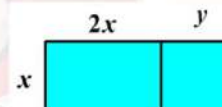
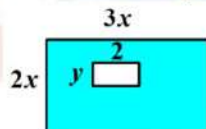
$$\star \frac{2^{-5} \times 2^8}{2^7 \times 2^{-3}}$$

$$\star \frac{a \times a^{-3} \times a^8}{a^5 \times a^{-4}}$$

- 9 Find the area of the trapezium whose lengths of the two parallel bases are 7 cm and 15 cm and its height is 8 cm.

- 10 Find the product of the following algebraic Expressions:  $(x-1)(x^2 - 4x + 6)$ , then find the numerical value at  $x = -2$

- 11 Find the area of the shaded part in each of the following shapes in the simplest form:



- 12 In an experiment of forming a 2-digit number from the set of digits  $\{3, 4, 5\}$ , what is the probability of each of the following events:

a) A the event that the tens is odd?  
b) B the event that the sum of the two digits is 8 ?  
c) C the event that the product of the two digits equals 20?





13 Find in the simplest form :

$$\left( \frac{5^3 \times 5^{-2}}{5^4 \times 5^{-1}} \right)^{-2}$$

.....

14 Find in simplest form the product  $(x - 3)(2x^2 - x + 4)$  and then find the numerical value of the result when  $x = -1$

.....

15 A cube has a lateral surface area of 324 square. Find the perimeter of its base lateral area

.....

16 If card is drawn at random from identical cards numbered from 5 to 15, find the probability that the card carries a number:

1) prime      2) even      3) greater than 12

.....

17 Find the value of b that makes the expression  $(4x^2 + 19x + b)$  by  $(4x - 1)$

.....

18 Simplify :  $\left(\frac{3}{2}\right)^2 + \sqrt{\frac{25}{4}} + \sqrt[3]{\frac{125}{64}}$  .

.....

19 Find the solution set for each of the following in Q

1)  $x^3 + 26 = -1$       2)  $2(X+3) \leq 3(X-4)$

.....

20 Find the length of the diagonal of the square whose area equal to the area of a rhombus with diagonal lengths of 4 meters and 16 meters.

.....





- 21 Draw an angle of measure  $60^\circ$ , then bisect it using A ruler and compass.

Express each of the following situations with an appropriate inequality :

- 22 a) The maximum speed of your car is  $80 \text{ Km} \setminus \text{h}$   
b) If 2 is subtracted from three times a number, the result is greater than 7.

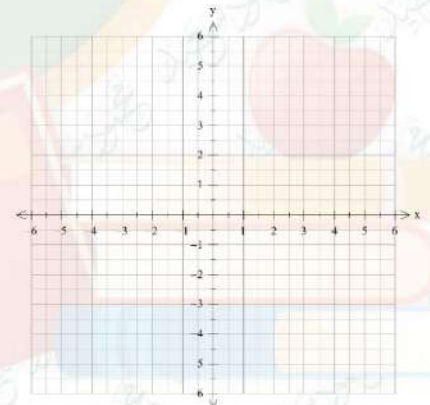
- 23 A box contains one red ball, five blue balls, four White balls, all of which are identical. If a ball is drawn Randomly from the bag and its colour is observed, what is the probability that the drawn ball is:

1) Red?      2) Green?      3) Blue or White?

- 24 Draw  $\triangle ABC$  where  $AB = 6 \text{ cm}$ ,  $BC = 5 \text{ cm}$  and  $m(\angle B) = 70^\circ$ , then determine the type of triangle according to the measures of its angles.

- 25 Find the solution set of the inequality  $2(3x - 1) \geq 4x - 3$  in  $\mathbb{Q}$

- 26 Draw the triangle ABC where:  $A(2, 0)$ ,  $B(4, 1)$ ,  $C(1, 3)$ , then draw its image under reflection in the x-axis



- 27 In the experiment of throwing a regular die once and observing the number that appears on its upper face. Write the sample space, then write each of the following events

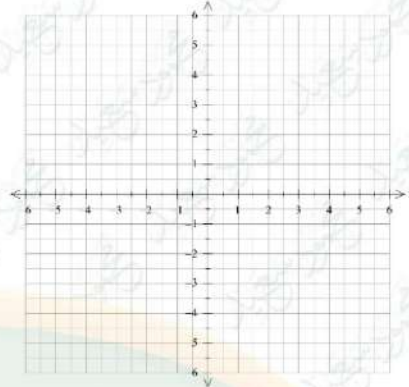
- 1) A is the event of getting a number divisible by 2?  
2) B is the event of getting an odd number that is not prim  
3) C is the event of getting a number greater than or Equal to 4  
4) D is the event of getting a number less than 6





- 28 Draw the rectangle ABCD where A (2, 1), B (2, 3), C (-3, 3), and D (-3, 1), then draw its image by reflection in the X-axis.

.....  
 .....  
 .....



- 29 Which has a greater area?

A rhombus with diagonals lengths of 6 cm and 10 cm or square with a diagonal length 8 cm.

.....

- 30 Draw the triangle ABC where AB = 5cm,  $m(\angle A) = 120^\circ$ ,  $m(\angle B) = 30^\circ$  and determine by measuring the type of the triangle according to the length of its sides

.....

- 31 Simplify to the simplest form :  $\sqrt{\frac{4}{25}} + \left(\frac{-3}{2}\right)^0 + \sqrt[3]{\frac{27}{125}}$

.....

- 32 Write the sample space of the random experiment of drawing a card from a set of identical cards numbered from 20 to 25 and observing the number written on the drawn card

.....

- 33 If  $x = -2$  and  $y = 3$ , Find the numerical value of each of the following:

1)  $x^y = \dots$       2)  $(-y)^3 = \dots$       3)  $(x + y)^2 = \dots$

.....

- 34 Draw an equilateral triangle with a perimeter of 12 cm.

.....





35 Find the quotient of:  $\frac{9ab^2 + 18a^2b - 6a^2b^2}{3ab}$

.....

36 Find the solution set in  $\mathbb{Q}$  for the inequality:  
 $3(x + 2) \geq 5x + 2$

.....

- 37 If a card is drawn randomly from identical cards numbered from 5 to 18, find the probability that the drawn card carries :
- 1) An odd number.
  - 2) An even number greater than 10.
  - 3) A perfect square.
  - 4) A number less than 5.
- .....

38 write the result in scientific notation:  $(8 \times 10^4) \div (3.2 \times 10^{-3})$

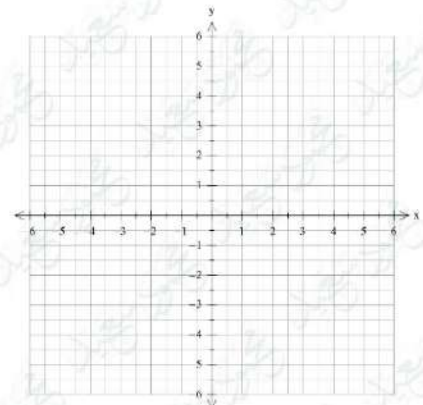
.....

- 39 In your personal library, you have 20 scientific books, 15 literary books, and 5 historical books. If you choose a book at random, what is the probability of selecting a scientific book?
- .....

40 write the result in scientific notation:  $(2.1 \times 10^4) + (4.1 \times 10^5)$

.....

- 41 Draw triangle  $\Delta ABC$  ,  $A(2,2)$  ,  $B(2,6)$  ,  $C(6,2)$   
 by translation  $(x, y) \rightarrow (x + 0, y - 5)$  ?
- .....
- .....
- .....





- 42 Write the result of the following in scientific notation:

$$(5.2 \times 10^9) - (8.5 \times 10^8)$$

.....

- 43 Draw a line segment  $\overline{AB}$  of length 8 cm , then bisect it using a ruler and compass.
- .....

- 44 Arrange the following numbers in an ascending order :

$$5\,400\,000, 7.1 \times 10^6, 1.2 \times 10^7, 0.95 \times 10^7$$

.....

- 47 In an experiment of rolling a fair die once and observing the number that appears on the upper face, write the sample space and then determine each of the following events, indicating which is simple, certain, or impossible :

- 1) Event (A) is the event of appearing a number divisible by 5
  - 2) Event (B) is the event of appearing a number that satisfies the inequality  $X > 6$
  - 3) Event (C) is the event of appearing an odd number that is not prime.
  - 4) Event (D) is the event of appearing a number less than 10
  - 5) Event (E) is the event of appearing a perfect cube.
- .....

- 48 The area of rectangle  $35x^6 - 15x^5 + 40x^2$  square units , one of its dimension is  $5x^2$  unit lenth . find the other dimension .
- .....

- 49 The area of a square equals the area of a triangle with a base length of 9 cm and a height corresponding to this base of 8 cm. Find the length of the square's side.
- .....

- 50 Write the number 128 by using prime factors and exponents.
- .....





- 51 Arrange each of the following in an ascending Order:  
 $4200\ 000, 3.4 \times 10^6, 0.37 \times 10^7$   
 .....
- 52 Simplify to its simplest form:  $\sqrt[3]{0.064} \times \sqrt{\frac{25}{9}} \times \left(\frac{2}{5}\right)^0$   
 .....
- 53 A trapezium has an area of 315 square centimeters and a height of 15 cm , If the ratio between the lengths of its two bases is 3 : 4 . What is the length of each base ?  
 .....
- 54 Solve equation in Z :  $2x(x - 5) + 10x = 50$   
 .....
- 55 A bag contains 40 identical marbles. mostafa draws randomly a marble if the marble is red, and the probability of drawing a red marble is  $\frac{3}{8}$  , then find the number of red marbles in the bag.  
 .....
- 56 Write the number 200 by using prime factors and exponents.  
 .....
- 57 If  $a = \frac{2}{3}$  , and  $b = -\frac{4}{3}$  , then find the value of :  $|b^3 \div a^3|$   
 .....
- 58 Find the value of x in  $x^2 - 5 = 5x^2 + 13$  ?  
 .....
- 59 A box contains 12 red balls, 3 blue balls, and 5 black balls, all of which are identical. If one ball is drawn randomly, calculate the probability that the drawn ball is :  
 1) Black.      2) Not red.      3) Blue or red.      4) Green.  
 .....





60 If  $3^4 + 3^4 + 3^4 = 3^n$ , then find the value of  $n$  ?

.....

61 Simplify to its simplest form:

a)  $3a(4a-2)-4a(3a-2)$



b)  $(2x + 3)^2$

.....

62 If a fair coin was tossed 50 times and head appeared 30 times, find the experimental probability of appearing :

1) Head (H)

2) Tail (T)

.....

63 Find the product :  $(x - 3)(4x^2 + 2x - 7)$

.....

64 Find the simplest form of  $\frac{(-a)^3 \times a^5}{(-a)^4 \times a^2}$  ?

.....

65 If  $(35x^2y^3 - 20xy) \div 5x = nxy^3 - 4y$ , then find the value of  $n$ .

.....

66 Arrange each of the following in a descending Order:

$7.3 \times 10^7, 1.69 \times 10^8, 2.1 \times 10^7, 1.4 \times 10^7$

.....

67 A trapezium has an area of  $72 \text{ cm}^2$  and a height of 9 cm. If the length of one of its bases is 6 cm, find the length of its other base.

.....

68 A cuboid with a volume of  $(4x^2 + 12xy + 9y^2)$  cubic units and its base area of  $(2x + 3y)$  square units. Find its height in terms of  $x$  and  $y$

.....





- 69 Find the image of the polygon ABCD by rotation  $R(0, -270^\circ)$  where A (2,0) , B (2,4) , C (0,4) , D (0,2).

- 70 In an experiment to form a 2-digit number from the set of digits {1,7,2}, what is the probability of each of the following events:

- 1) A is the event that the sum of the two digits is 8 ?
- 2) B is the event that the tens digit is even?
- 3) C is the event that the tens digit = the once digit ?

- 71 Find the solution set for each of the following equations in  $Q$  :

a)  $x(x - 3) + 3(x - 27) = 0$       b)  $3x^3 - 4 = 2x^3 + 4$

- 72 Find the solution set for each of the following in  $Q$ :

1)  $3x^3 + 3 = 84$       2)  $5x^2 - 2 = 43$

انتهت الأسئلة مع أطيب الامنيات بالنجاح والتوفيق







## Second Term Questions Bank



### Question 01

### Choose the correct answer

- 1 The probability of a certain event is ....  
 (a) 100% (b) 0 (c)  $\frac{2}{5}$  (d)  $\frac{1}{2}$
- 2 Which of the following is the image of the point (5,0) by rotation  $R(0,90^\circ)$ ?  
 (a) (5,0) (b) (-5,0) (c) (0,5) (d) (0,-5)
- 3 A card carrying a letter from the word [School] was drawn randomly. What is the probability that this letter is [S]?  
 (a)  $\frac{1}{6}$  (b)  $\frac{1}{3}$  (c)  $\frac{2}{3}$  (d)  $\frac{1}{5}$
- 4 The image of the point (6,0) by reflection in Y- axis is...  
 (a) (6,0) (b) (-6,0) (c) (0,6) (d) (0,-6)
- 5  $(x^3 + x^2) \div x^2 = \dots\dots\dots$   
 (a) 0 (b) x (c) x + 1 (d)  $2x + 1$
- 6  $\sqrt[3]{a^{15}} = \sqrt{\dots\dots\dots}$   
 (a)  $a^5$  (b)  $a^{10}$  (c)  $a^{12}$  (d)  $a^{18}$
- 7 A trapezium with a middle base length of 6 cm and height 7 cm, then its area = ...cm<sup>2</sup>  
 (a) 13 (b) 42 (c) 30 (d) 26
- 8 If the side length of a rhombus is 5 cm and its height is 4 cm, then its area = ....cm<sup>2</sup>  
 (a) 9 (b) 18 (c) 20 (d) 40
- 9 Which of the following could be a probability of an event occurring?  
 (a) 1.3 (b) -0.5 (c) 150% (d)  $\frac{2}{3}$
- 10 What is image of the point (5, -4) by rotation  $R(0,180^\circ)$  followed by rotation  $R(0,-90^\circ)$   
 (a) (-5, -4) (b) (-4, -5) (c) (-5, 4) (d) (4, 5)
- 11 The probability of the impossible event = .....  
 (a)  $\emptyset$  (b) 0 (c)  $\frac{4}{5}$  (d)  $\frac{1}{2}$





- 12 If the probability of an event occurring is  $\frac{1}{5}$ , the probability of it not occurring is .  
 (a)  $\frac{1}{5}$  (b)  $\frac{1}{4}$  (c)  $\frac{4}{5}$  (d)  $\frac{1}{3}$
- 13 Identity rotation is a rotation around the origin 0 by an angle of measure ....  
 (a)  $90^\circ$  (b)  $180^\circ$  (c)  $270^\circ$  (d)  $360^\circ$
- 14  $\frac{5x^2y - \dots}{5xy} = x - 3y$   
 (a)  $\frac{3}{5}xy$  (b)  $\frac{3}{5}yx^2$  (c)  $15x^2y$  (d)  $15xy^2$
- 15 If the A (3,5) is the image of the point A by translation  $(x,y) \rightarrow (x-1,y+2)$ , then the point A is .....  
 (a) (2,7) (b) (4,3) (c) (5,3) (d) (4,-3)
- 16 Which of the following points remains the same when reflected in the y-axis?  
 (a) (-7, 0) (b) (0, 3) (c) (-2, 5) (d) (4, -10)
- 17 What is the image of the point (a,b) by reflection in the y-axis ?  
 (a) (a,-b) (b) (-a,b) (c) (b,-a) (d) (-b,a)
- 18 What is the image of the point (2,-3) by translation 3 units upwards?  
 (a) (5,-3) (b) (5,-6) (c) (2,0) (d) (5,0)
- 19 A trapezium with a height of 5.4 cm and the lengths of its parallel bases are 8 cm and 10 cm , has an area of ..... Square centimeters.  
 (a) 48.6 (b) 54 (c) 97.2 (d) 432
- 20 The product of the length of two diagonals of a square is 16 square meters. What is its area in square meters?  
 (a) 4 (b) 8 (c) 32 (d) 128
- 21 What is the image of the point (a , b) by translation  $(x , y) \rightarrow (x+2 , y-3)$  ?  
 (a) (a-3 , b+2) (b) (a+2 , b-3) (c) (2 , -3) (d) (a+2 , b+3)
- 22 The image of the point ..... is the same point by reflection in the X-axis.  
 (a) (-3,0) (b) (0,2) (c) (-4,10) (d) (-2,-5)
- 23 In an experiment of tossing a fair coin once and observing the upper face, what is the probability of obtaining a head (H)?  
 (a) 1 (b)  $\frac{1}{2}$  (c)  $\frac{1}{4}$  (d) Zero
- 24  $\frac{1}{4}$  of the number  $4^8$  is .....  
 (a)  $4^2$  (b)  $4^4$  (c)  $4^6$  (d)  $4^7$



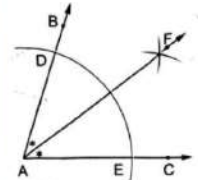


- 25 A trapezium with a middle base length of  $X$  cm and a height is equal to half the length of its middle base. What is its area in square centimeters?  
 (a)  $x^2$  (b)  $\frac{x^2}{2}$  (c)  $\frac{x^2}{4}$  (d)  $\frac{x^2}{8}$
- 26 If the probability of a student success is 85 %, then the probability of failure is ....  
 (a) 50% (b) 15% (c)  $\frac{1}{4}$  (d)  $\frac{1}{2}$
- 27  $|\sqrt[3]{-64}| = \dots\dots\dots$   
 (a) 8 (b) 4 (c) 2 (d) -4
- 28 If  $x-4 > 1$  , then which of the following could be the value of  $x$ ?  
 (a) 0 (b) -4 (c) 5 (d) 6
- 29 The sum of the probabilities of all possible outcomes of any random experiment =....  
 (a) 50% (b) 1 (c) 0 (d)  $\frac{1}{2}$
- 30 In the experiment of forming a 2- different digit number from The set of numbers {1, 2, 3} , the number of elements in the sample space is ....  
 (a) 3 (b) 6 (c) 4 (d) 9
- 31 The length of the middle base in a trapezium is equal to 15 feet and its height is 8 feet. What is it area?  
 (a) 30 square feet (b) 120 square feet  
 (c) 240 square feet (d) 23 square feet
- 32 In an experiment of tossing a fair coin three consecutive times and observing the upper face, how many elements are there in the sample space?  
 (a) 2 (b) 4 (c) 8 (d) 16
- 33 In an experiment of rolling a fair die once, what is Probability of appearing a number less than 5?  
 (a)  $\frac{1}{6}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{3}$  (d)  $\frac{1}{2}$
- 34 Which of the following numbers is in scientific notation?  
 (a)  $11 \times 10^{11}$  (b)  $75 \times 10^{16}$  (c)  $-1.2 \times 10^{-3}$  (d)  $0.05 \times 10^{11}$
- 35 The probability of a certain event is .....  
 (a)  $\frac{3}{4}$  (b) 100% (c) 0 (d)  $\frac{1}{2}$





- 36 If a rhombus with diagonal lengths of 6 inches and 10 inches, then what is its area?
- (a) 30 square inches (b) 60 square inches  
(c) 16 square inches (d) 120 square inches
- 37 The rotation  $R(0, 180)$  followed by the rotation  $R(0, 180)$  is equivalent to the rotation ....
- (a)  $R(0, 180)$  (b)  $R(0, 360)$  (c)  $R(0, 90)$  (d)  $R(0, -90)$
- 38 In an experiment of rolling a fair die once, what is the probability of appearing a prime even number?
- (a)  $\frac{1}{2}$  (b)  $\frac{1}{3}$  (c)  $\frac{1}{6}$  (d)  $\frac{1}{4}$
- 39 If the area of a rhombus is  $18 \text{ cm}^2$ , then the product of its diagonal lengths is .....  $\text{cm}^2$
- (a) 9 (b) 36 (c) 6 (d) 54
- 40 In an experiment of selecting one of the digits randomly from the number 6,543, what is sample space?
- (a) {6, 543} (b) {65, 43} (c) {6, 5, 4, 3} (d) {65, 43, 54}
- In the opposite figure :
- 41 When bisecting  $\angle BAC$  with a compass makes you find that:  
 $m\angle BAF = \dots\dots$
- (a)  $m\angle BFA$  (b)  $m\angle EAF$  (c)  $m\angle EFA$  (d)  $m\angle BAC$
- 42 What is the image of the point (5, -3) by reflection in the X-axis followed by reflection in the Y-axis?
- (a) (-5, 3) (b) (5, 3) (c) (-5, -3) (d) (-3, -5)
- 43 A trapezium with an area  $100 \text{ cm}^2$  and a middle base length 8cm, then its height = ..... cm
- (a) 8 (b) 10 (c) 12 (d) 12.5
- 44 Selecting a ball from a basket containing 6 identical balls, all are blue is ....
- (a) not a random experiment (b) a simple event  
(c) a random experiment (d) an impossible event
- 47 What rotation makes the image of the point A (2, -5) become the point A' (-5, -2)?
- (a)  $R(0, 90^\circ)$  (b)  $R(0, -90^\circ)$  (c)  $R(0, 180^\circ)$  (d)  $R(0, 360^\circ)$
- 48 If the area of a square is  $50 \text{ cm}^2$ , then the length of its diagonal = .... Cm
- (a) 10 (b) 100 (c) 25 (d) 15





- 49 In an experiment to form a 2-digit number formed from different digits from the set  $\{2,6,3\}$ , how many elements are there in the event that expresses "the resulting number is even" ?  
 (a) 2 (b) 3 (c) 4 (d) 6
- 50 What is the image of the point  $(3,-9)$  by rotation  $R(0,180^\circ)$  followed by rotation  $R(0,-90^\circ)$ ?  
 (a)  $(-3,-9)$  (b)  $(-9,-3)$  (c)  $(-3,9)$  (d)  $(9,3)$
- 51 What is the coefficient of a b in the expansion of the expression  $(4a - 5b)^2$  ?  
 (a) -40 (b) 50 (c) 20 (d) 40
- 52 Which of the following cannot be a probability of an event?  
 (a) 0.3 (b) -0.3 (c) 31% (d)  $\frac{1}{2}$
- 53 Which the following equals  $a^{-1} \times a^3$  ?  
 (a)  $a^2$  (b)  $a^4$  (c)  $\frac{1}{a^2}$  (d)  $\frac{1}{a^3}$
- 54 If the image of the point A  $(x, y)$  under rotation  $R(0,90)$  is  $A'(-2, -5)$  then  $x+y=...$   
 (a) -3 (b) -7 (c) 3 (d) 7
- 55 A box contains 28 apples, of which 8 are bad. If an apple is drawn randomly from the box, the probability that this apple is not bad is ...  
 (a)  $\frac{1}{7}$  (b)  $\frac{5}{7}$  (c) 1 (d)  $\frac{2}{5}$
- 56 A trapezium with parallel base of length 6cm and 10 cm and a height of 6 cm, then its area = ... $cm^2$   
 (a) 16 (b) 48 (c) 360 (d) 180
- 57 If  $x \in \mathbb{N}$ , what is the solution set to the inequality  $-x > 3$ ?  
 (a)  $\{-4,-5,...\}$  (b)  $\{4,5,6,...\}$  (c)  $\{-3\}$  (d)  $\emptyset$
- 58 What is the image of the point  $(2, -3)$  by rotation around the origin with angle of measure  $90^\circ$  anticlockwise  
 (a)  $(-2, -3)$  (b)  $(3, 2)$  (c)  $(-2, 3)$  (d)  $(2, -3)$
- 59 A ball is drawn from a box containing a set of identical balls numbered from 1 to 15, and the number drawn is recorded this is  
 (a) a random experiment. (b) not a random experiment  
 (c) an impossible event. (d) a certain event.





- 60 A rhombus with a side length of 15 cm and diagonal lengths of 18 cm and 24 cm. What is its height?  
 (a) 28.8 cm (b) 7.2 cm (c) 14.4 cm (d) 360 cm
- 61 A card carrying a letter from the word "NORHAN" is drawn randomly. What is the probability that this letter is "N"?  
 (a)  $\frac{1}{6}$  (b)  $\frac{1}{3}$  (c)  $\frac{2}{5}$  (d)  $\frac{2}{3}$
- 62  $1.82 \times 10^{-5}$  .....  $2.1 \times 10^{-5}$   
 (a) < (b) > (c) = (d) other
- 63 If B is an event from a random experiment and  $P(B)$  equals  $\frac{3}{4}$ , then  $P(\text{not } B)$  equals ..  
 (a)  $\frac{1}{4}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{2}$  (d)  $\frac{3}{4}$
- 64 If  $(x+2)(x-5) = x^2 + bx + c$ , then  $c =$ ....  
 (a) 10 (b) -10 (c) 7 (d) -7
- 65 What is the point whose image by rotation  $R(0, 180^\circ)$  is  $(-3, 1)$ ?  
 (a)  $(3, 1)$  (b)  $(1, 3)$  (c)  $(-1, 3)$  (d)  $(3, -1)$
- 66 What is the area of a square with side length of 6 feet?  
 (a) 6 (b) 12 (c) 36 (d) 18
- 67 If the sample space for a random experiment is  $S = \{3, 6, 7, 9\}$ , then the event of showing a prime number is ....  
 (a)  $\{3, 7, 9\}$  (b)  $\{3, 6, 7\}$  (c)  $\{3, 7\}$  (d)  $\{3, 6, 7, 9\}$
- 68 If a rhombus with diagonal lengths of 5 cm and 10 cm, then what is its area?  
 (a)  $50 \text{ cm}^2$  (b)  $25 \text{ cm}^2$  (c)  $100 \text{ cm}^2$  (d)  $15 \text{ cm}^2$
- 69  $\sqrt{36} + \sqrt{16} = \sqrt{\dots\dots\dots}$   
 (a) 100 (b) 120 (c) 52 (d) 10
- 70 If  $x+y=4$ , and  $x^2 - y^2 = 36$ , then what is the value of  $x - y$ ?  
 (a) 9 (b) 144 (c) 32 (d) 40
- 71 Which of the following equals  $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$ ?  
 (a)  $3 \times 7$  (b)  $7^3$  (c)  $3^7$  (d)  $3 + 7$
- 72 Which inequality expresses that two times the number  $x$  is greater than or equal to 5?  
 (a)  $2x \geq 5$  (b)  $2x > 5$  (c)  $x \geq 5$  (d)  $5x \geq 2$





- 73 Which of the following is the largest?  
 (a)  $5.6 \times 10^{-4}$  (b)  $7.8 \times 10^{-8}$  (c)  $3.6 \times 10^{-3}$  (d)  $5.8 \times 10^{-6}$
- 74 If the probability of success of a student is 70%. Then the probability of his failure is ....  
 (a) 0.03 (b) 0.3 (c) 0.07 (d) 0.7
- 75 What is the multiplicative inverse of the number  $\sqrt{\frac{9}{25}}$  in the simplest form ?  
 (a)  $-\frac{3}{5}$  (b)  $-\frac{5}{3}$  (c)  $\frac{3}{5}$  (d)  $\frac{5}{3}$

Question 02

Answer the following questions

- 1 In an experiment of tossing a fair coin twice consecutively and observing the sequence of heads and tails, write the sample space (S) and then express each of the following events:
- 1) A is the event "a tail appears on the first toss".
  - 2) B is the event "a head appears on only one of the tosses".
  - 3) C is the event "the same result appears on both tosses".
- $S = \{(H, H), (H, T), (T, H), (T, T)\}$
- 1)  $A = \{(T, H), (T, T)\}$
  - 2)  $B = \{(T, H), (H, T)\}$
  - 3)  $C = \{(T, T), (H, H)\}$
- 2 Find the diagonal length of the square whose area is equal to the area of a rhombus with diagonal lengths of 4 meters and 25 meters.

$$\begin{aligned} \text{The area of the rhombus} &= \frac{1}{2} \times d_1 \times d_2 \\ &= \frac{1}{2} \times 25 \times 4 = 50 \text{ m}^2 \end{aligned}$$

$$\text{The area of the square} = \frac{1}{2} \times d^2$$

$$50 = \frac{1}{2} \times d^2$$

$$d^2 = 100$$

$$d = 10 \text{ m}$$

Diagonal length of the square = 10 m





- 3 Find the quotient of :  $\frac{18x^3 + 12x^2 - 6x}{-6x}$

$$\frac{18x^3 + 12x^2 - 6x}{-6x} = \frac{18x^3}{-6x} + \frac{12x^2}{-6x} - \frac{6x}{-6x} = -3x^2 - 2x + 1$$

- 4 Calculate the area of a rectangle his length exceeds 3 units than his width, and his width equal x length Units.

$$W = x \quad L = x + 3$$

$$A = x(x + 3)$$

$$= x^2 + 3x$$

- 5 Simplify to the simplest form :  $\frac{x^{-3} \times x^5 \times (-x)^4}{x^2 \times x^{-4} \times x^6}$ ,  
then find the numerical value when  $x = 2$  ?

$$\frac{x^{-3} \times x^5 \times (-x)^4}{x^2 \times x^{-4} \times x^6} = \frac{x^{-3} \times x^5 \times x^4}{x^2 \times x^{-4} \times x^6} = x^{-3+5+4-2+4-6} = x^2$$

$$\text{The numerical value} = (2^2) = 4$$

- 6 If a card is drawn randomly from identical cards numbered from 20 to 29. Find the probability that the card carries.

a) An even number

c) A number less than 22

$$a) \frac{1}{2}$$

$$b) \frac{1}{5}$$

- 7 If a fair coin was tossed 150 times and heads appeared 48 times, find the experimental probability of appearing:

1) Heads (H)

2) Tails (T)

$$1) \frac{48}{150}$$

$$2) \frac{102}{150}$$

- 8 Find in the simplest form the value of:

$$\star \frac{2^{-5} \times 2^8}{2^7 \times 2^{-3}}$$

$$\star \frac{a \times a^{-3} \times a^8}{a^5 \times a^{-4}}$$

$$= \frac{2^{-5+8}}{2^{7+(-3)}}$$

$$= \frac{a^{-3+1+8}}{a^{5+(-4)}} = \frac{a^6}{a^1} = a^5$$

$$= \frac{2^3}{2^4} = 2^{-1} = \frac{1}{2}$$





- 9 Find the area of the trapezium whose lengths of the two parallel bases are 7 cm and 15 cm and its height is 8 cm.

$$\text{The area of the trapezium} = \frac{1}{2} (b_1 + b_2) \times h = \frac{1}{2} (7 + 15) \times 8 = 88 \text{ cm}^2$$

- 10 Find the product of the following algebraic Expressions:  $(x-1)(x^2 - 4x + 6)$ , then find the numerical value at  $x = -2$

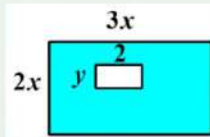
$$x^3 - 4x^2 + 6x - x^2 + 4x - 6$$

$$x^3 - 5x^2 + 10x - 6$$

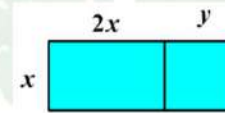
When  $x = -2$

$$\therefore (-2)^3 - 5(-2)^2 + 10(-2) - 6 = -54$$

- 11 Find the area of the shaded part in each of the following shapes in the simplest form:



$$A = 6x^2 - 2y$$



$$A = x(2x + y) = 2x^2 + xy$$

- 12 In an experiment of forming a 2-digit number from the set of digits {3, 4, 5}, what is the probability of each of the following events:

- a) A the event that the tens is odd?  
b) B the event that the sum of the two digits is 8 ?  
c) C the event that the product of the two digits equals 20?

$$\text{a) } P(A) = \frac{6}{9} = \frac{2}{3}$$

$$\text{b) } P(B) = \frac{3}{9}$$

$$\text{c) } P(C) = \frac{2}{9}$$

- 13 Find in the simplest form :

$$\left( \frac{5^3 \times 5^{-2}}{5^4 \times 5^{-1}} \right)^{-2}$$

$$= \left( \frac{5}{5^3} \right)^{-2} = (5^{1-3})^{-2} = (5^{-2})^{-2}$$

$$= 5^4 = 625$$





- 14 Find in simplest form the product  $(x - 3)(2x^2 - x + 4)$  and then find the numerical value of the result when  $x = -1$

$$\begin{aligned} &(x - 3)(2x^2 - x + 4) \\ &2x^3 - x^2 + 4x - 6x^2 + 3x - 12 \\ &2x^3 - 7x^2 + 7x - 12 \\ &\text{The numerical value} = -28 \end{aligned}$$

- 15 A cube has a lateral surface area of 324 square. Find the perimeter of its base lateral area

$$\text{lateral surface area} = 324$$

$$4s^2 = 324$$

$$s^2 = 81$$

$$s = 9\text{cm}, \quad p = 4s = 4 \times 9 = 36\text{cm}$$

- 16 If card is drawn at random from identical cards numbered from 5 to 15, find the probability that the card carries a number:

1) prime      2) even      3) greater than 12

$$1) \frac{4}{11} \quad 2) \frac{5}{11} \quad 3) \frac{3}{11}$$

- 17 Find the value of  $b$  that makes the expression  $(4x^2 + 19x + b)$  by  $(4x - 1)$

$$\begin{array}{r} \phantom{4x^2 + 19x + b} x + 5 \\ 4x - 1 \overline{) 4x^2 + 19x + b} \\ \underline{4x^2 - x} \phantom{+ b} \\ 20x + b \\ \underline{20x - 5} \\ b = -5 \end{array}$$

- 18 Simplify:  $\left(\frac{3}{2}\right)^2 + \sqrt{\frac{25}{4}} + \sqrt[3]{\frac{125}{64}}$

$$\frac{9}{4} + \frac{5}{2} + \frac{5}{4} = \frac{9}{4} + \frac{10}{4} + \frac{5}{4} = \frac{24}{4} = 6$$





19 Find the solution set for each of the following in  $\mathbb{Q}$

1)  $x^3 + 26 = -1$

2)  $2(X+3) \leq 3(X-4)$

$x^3 = -1 - 26$

$2x + 6 \leq 3x - 12$

$x^3 = -27$

$2x - 3x \leq -12 + (-6)$

$-x \leq -18$

$x = -3$

$x \geq 18$

20 Find the length of the diagonal of the square whose area equal to the area of a rhombus with diagonal lengths of 4 meters and 16 meters.

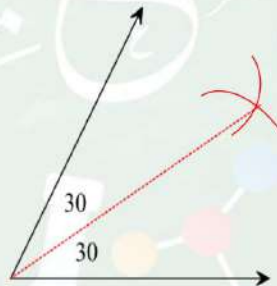
$A1 = \frac{1}{2} \times d_1 \times d_2 = \frac{1}{2} \times 4 \times 16 = 32m^2$

$\therefore \text{The area of the square} = 32m^2$

$A2 = \frac{1}{2} \times d^2$

$\therefore 32 = \frac{1}{2} \times d^2 \therefore d^2 = 64 \therefore d = \sqrt{64} = 8m$

21 Draw an angle of measure  $60^\circ$ , then bisect it using A ruler and compass.



Express each of the following situations with an appropriate inequality :

22 a) The maximum speed of your car is 80 Km \ h

b) If 2 is subtracted from three times a number, the result is greater than 7.

a)  $f \leq 80$

b)  $3x - 2 > 7$

23 A box contains one red ball, five blue balls, four White balls, all of which are identical. If a ball is drawn Randomly from the bag and its colour is observed, what is the probability that the drawn ball is:

1) Red?

2) Green?

3) Blue or White?

1)  $P(R) = \frac{1}{10}$

2)  $P(G) = 0$

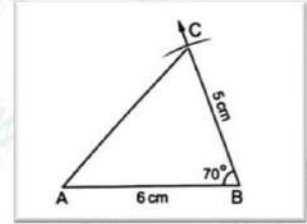
3)  $P(B \text{ or } W) = \frac{9}{10}$





- 24 Draw  $\triangle ABC$  where  $AB = 6 \text{ cm}$ ,  $BC = 5 \text{ cm}$  and  $m \angle B = 70^\circ$ , then determine the type of triangle according to the measures of its angles.

From the figure the triangle is an acute - angled triangle



- 25 Find the solution set of the inequality  $2(3x - 1) \geq 4x - 3$  in  $\mathbb{Q}$

$$2(3x - 1) \geq 4x - 3$$

$$6x - 2 \geq 4x - 3$$

$$6x - 4x \geq -3 + 2$$

$$2x \geq -1$$

$$x \geq \frac{-1}{2}$$

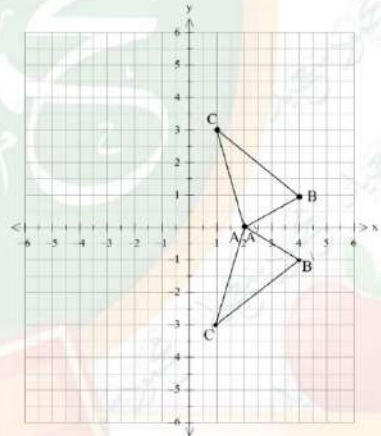
The solution set =  $\{x : x \in \mathbb{Q}, x \geq \frac{-1}{2}\}$

- 26 Draw the triangle ABC where:  $A(2, 0)$ ,  $B(4, 1)$ ,  $C(1, 3)$ , then draw its image under reflection in the x-axis

$$A(2, 0) \quad A'(2, 0)$$

$$B(4, 1) \quad B'(4, -1)$$

$$C(1, 3) \quad C'(1, -3)$$



- 27 In the experiment of throwing a regular die once and observing the number that appears on its upper face. Write the sample space, then write each of the following events

1) A is the event of getting a number divisible by 2?

2) B is the event of getting an odd number that is not prime

3) C is the event of getting a number greater than or Equal to 4

4) D is the event of getting a number less than 6

$$1) \frac{3}{6} = \frac{1}{2}$$

$$2) \frac{1}{6}$$

$$3) \frac{3}{6} = \frac{1}{2}$$

$$4) \frac{5}{6}$$





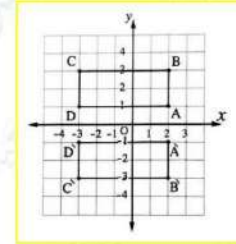
- 28 Draw the rectangle ABCD where A (2, 1), B (2, 3), C (-3, 3), and D (-3, 1), then draw its image by reflection in the X-axis.

By reflection in the X-axis

$$A (2,1) \rightarrow \hat{A} (2, -1)$$

$$B (2,3) \rightarrow \hat{B} (2,-3)$$

$$C (-3,3) \rightarrow \hat{C} (-3,-3)$$



- 29 Which has a greater area?

A rhombus with diagonals lengths of 6 cm and 10 cm or square with a diagonal length 8 cm.

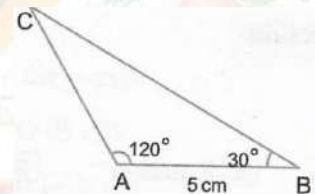
$$\begin{aligned} \text{The area of rhombus} &= \frac{1}{2} d_1 \times d_2 = \frac{1}{2} \times 6 \times 10 \\ &= 30\text{cm}^2 \end{aligned}$$

$$\text{The area of square} = \frac{1}{2} d^2 = \frac{1}{2} 8^2 = 32\text{cm}^2$$

a greater area (square)

- 30 Draw the triangle ABC where AB = 5cm,  $m(\angle A) = 120^\circ$ ,  $m(\angle B) = 30^\circ$  and determine by measuring the type of the triangle according to the length of its sides

From the drawing the triangle is an isosceles triangle, where  $AB = AC = 5\text{ CM}$



- 31 Simplify to the simplest form :  $\sqrt{\frac{4}{25}} + \left(\frac{-3}{2}\right)^0 + \sqrt[3]{\frac{27}{125}}$

$$\frac{2}{5} + 1 + \frac{3}{5} = 1 + \frac{5}{5} = 2$$

- 32 Write the sample space of the random experiment of drawing a card from a set of identical cards numbered from 20 to 25 and observing the number written on the drawn card

$$s = \{20, 21, 22, 23, 24, 25\}$$

$$n(s) = 6$$





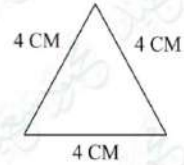
- 33 If  $x = -2$  and  $y = 3$ , Find the numerical value of each of the following:

1)  $x^y = \dots$       2)  $(-y)^3 = \dots$       3)  $(x + y)^2 = \dots$

1)  $x^y = -8$       2)  $(-y)^3 = -27$       3)  $(x + y)^2 = 1$

- 34 Draw an equilateral triangle with a perimeter of 12 cm.

*The side length of the triangle =  $12 \div 3 = 4 \text{ cm}$*



- 35 Find the quotient of:  $\frac{9ab^2 + 18a^2b - 6a^2b^2}{3ab}$

$3b + 6a - 2ab$

- 36 Find the solution set in  $\mathbb{Q}$  for the inequality:

$3(x + 2) \geq 5x + 2$

$3x + 6 \geq 5x + 2$

$3x - 5x \geq 2 - 6$

$-2x \geq -4$

$x \leq 2$

- 37 If a card is drawn randomly from identical cards numbered from 5 to 18, find the probability that the drawn card carries :

1) An odd number.

2) An even number greater than 10.

3) A perfect square.

4) A number less than 5.

1)  $\frac{1}{2}$

2)  $\frac{2}{7}$

3)  $\frac{1}{7}$

4) Zero

- 38 write the result in scientific notation:  $(8 \times 10^4) \div (3.2 \times 10^{-3})$

$= 2.5 \times 10^7$

- 39 In your personal library, you have 20 scientific books, 15 literary books, and 5 historical books. If you choose a book at random, what is the probability of selecting a scientific book?

$\frac{20}{40} = \frac{1}{2} = 0.1570$





- 40 write the result in scientific notation:  $(2.1 \times 10^4) + (4.1 \times 10^5)$

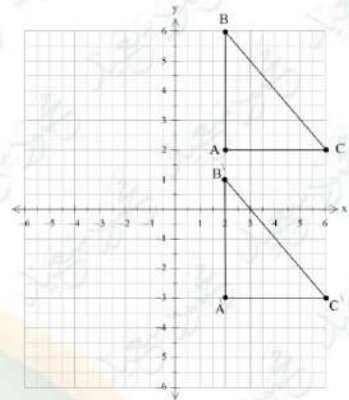
$$(2.1 + 41) \times 10^4 = 43.1 \times 10^4 = 4.31 \times 10^5$$

- 41 Draw triangle  $\triangle ABC$  ,  $A(2,2)$  ,  $B(2,6)$  ,  $C(6,2)$   
by translation  $(x, y) \rightarrow (x + 0, y - 5)$  ?

$$A(2, 2) \rightarrow \hat{A}(2, -3)$$

$$B(2, 6) \rightarrow \hat{B}(2, 1)$$

$$C(6, 2) \rightarrow \hat{C}(6, -3)$$



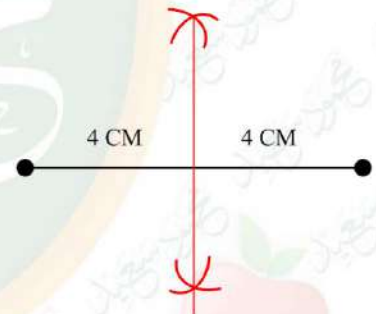
- 42 Write the result of the following in scientific notation:

$$(5.2 \times 10^9) - (8.5 \times 10^8)$$

$$= (52 \times 10^8) - (8.5 \times 10^8)$$

$$= (52 - 8.5) \times 10^8 = 43.5 \times 10^8 = 4.35 \times 10^9$$

- 43 Draw a line segment  $\overline{AB}$  of length 8 cm , then bisect it using a ruler and compass.



- 44 Arrange the following numbers in an ascending order :

$$5\,400\,000, 7.1 \times 10^6, 1.2 \times 10^7, 0.95 \times 10^7$$

$$5\,400\,000 < 7.1 \times 10^6 < 0.95 \times 10^7 < 1.2 \times 10^7$$

- 47 In an experiment of rolling a fair die once and observing the number that appears on the upper face, write the sample space and then determine each of the following events, indicating which is simple, certain, or impossible :

- 1) Event (A) is the event of appearing a number divisible by 5
- 2) Event (B) is the event of appearing a number that satisfies the inequality  $X > 6$
- 3) Event (C) is the event of appearing an odd number that is not prime.
- 4) Event (D) is the event of appearing a number less than 10
- 5) Event (E) is the event of appearing a perfect cube.

$$S = \{1, 2, 3, 4, 5, 6\}$$

$$1) A = \{5\} \text{ (Simple event)}$$

$$2) B = \emptyset \text{ (Impossible event)}$$





3)  $C = \{1\}$  (Simple event)

4)  $D = \{1, 2, 3, 4, 5, 6\}$  (Certain event)

5)  $E = \{1\}$  (Simple event)

- 48 The area of rectangle  $35x^6 - 15x^5 + 40x^2$  square units , one of its dimension is  $5x^2$  unit lenth . find the other dimension .

The other lenth =  $7x^4 - 3x^3 + 8$

- 49 The area of a square equals the area of a triangle with a base length of 9 cm and a height corresponding to this base of 8 cm. Find the length of the square's side.

The area of the triangle =  $\frac{1}{2} \times 9 \times 8 = 36$  square centimeters

The area of the square = 36 square centimeters

$\therefore$  The length of the side of the square =  $\sqrt{36} = 6$  cm

- 50 Write the number 128 by using prime factors and exponents.

$128 = 2^7$

- 51 Arrange each of the following in an ascending Order:

4200 000,  $3.4 \times 10^6$  ,  $0.37 \times 10^7$

$\rightarrow 3.4 \times 10^6$  ,  $0.37 \times 10^7$  , 4200 000

- 52 Simplify to its simplest form:  $\sqrt[3]{0.064} \times \sqrt{\frac{25}{9}} \times (\frac{2}{5})^0$

$= \frac{2}{5} \times \frac{5}{3} \times 1 = \frac{2}{3}$

- 53 A trapezium has an area of 315 square centimeters and a height of 15 cm , If the ratio between the lengths of its two bases is 3 : 4 . What is the length of each base ?

The length of the middle base =  $= \frac{\text{the area}}{\text{height}} = \frac{315}{15} = 21$  cm

First base : Second base : Sum

3 : 4 : 7  
: : 42

The value of one part =  $42 \div 7 = 6$

The length of first base =  $3 \times 6 = 18$  cm

The length of second base =  $4 \times 6 = 24$  cm





- 54 Solve equation in  $Z$ :  $2x(x - 5) + 10x = 50$

$$2x^2 - 10x + 10x = 50$$

$$2x^2 = 50, x^2 = \frac{50}{2} = 25, x = \pm\sqrt{25} = \pm 5$$

- 55 A bag contains 40 identical marbles. Mostafa draws randomly a marble if the marble is red, and the probability of drawing a red marble is  $\frac{3}{8}$ , then find the number of red marbles in the bag.

$$\text{Number of red marbles} = \frac{3}{8} \times 40 = 15 \text{ marbles}$$

- 56 Write the number 200 by using prime factors and exponents.

$$200 = 2^3 \times 5^2$$

- 57 If  $a = \frac{2}{3}$ , and  $b = -\frac{4}{3}$ , then find the value of:  $|b^3 \div a^3|$

$$|-8| = 8$$

- 58 Find the value of  $x$  in  $x^2 - 5 = 5x^2 + 13$ ?

$$7x^2 - 5x^2 = 13 + 5$$

$$x = \pm 3$$

- 59 A box contains 12 red balls, 3 blue balls, and 5 black balls, all of which are identical. If one ball is drawn randomly, calculate the probability that the drawn ball is:

1) Black.      2) Not red.      3) Blue or red.      4) Green.

$$1) \frac{1}{4}$$

$$2) \frac{2}{5}$$

$$3) \frac{3}{4}$$

4) Zero

- 60 If  $3^4 + 3^4 + 3^4 = 3^n$ , then find the value of  $n$ ?

$$3^4 + 3^4 + 3^4 = 3^n$$

$$3 \times 3^4 = 3^n$$

$$3^{1+4} = 3^n$$

$$3^5 = 3^n$$

$$n = 5$$

- 61 Simplify to its simplest form:

$$a) 3a(4a-2) - 4a(3a-2)$$

$$b) (2x + 3)^2$$

$$a) 12a^2 - 6a - 12a^2 + 8a = 2a$$

$$b) 4x^2 + 12x + 9$$





- 62 If a fair coin was tossed 50 times and head appeared 30 times, find the experimental probability of appearing :

1) Head (H)                      2) Tail (T)

1)  $\frac{3}{5}$                       2)  $\frac{2}{5}$

- 63 Find the product :  $(x - 3)(4x^2 + 2x - 7)$

$4x^3 - 10x^2 - 13x + 21$

- 64 Find the simplest form of  $\frac{(-a)^3 \times a^5}{(-a)^4 \times a^2}$  ?

$= \frac{-a^3 \times a^5}{a^4 \times a^2} = -a^2$

- 65 If  $(35x^2y^3 - 20xy) \div 5x = nxy^3 - 4y$ , then find the value of n.

$7xy^3 - 4y = nxy^3 - 4y$

$\therefore n = 7$

- 66 Arrange each of the following in a descending Order:

$7.3 \times 10^7, 1.69 \times 10^8, 2.1 \times 10^7, 1.4 \times 10^7$

$\rightarrow 1.69 \times 10^8, 7.3 \times 10^7, 2.1 \times 10^7, 1.4 \times 10^7$

- 67 A trapezium has an area of  $72 \text{ cm}^2$  and a height of 9 cm. If the length of one of its bases is 6 cm, find the length of its other base.

$A = \frac{1}{2}(b_1 + b_2) \times h$

$72 = \frac{1}{2}(6 + x) \times 9$

$(6 + x) \times 9 = 72 \times 2$

$(6 + x) \times 9 = 144$

$6 + x = \frac{144}{9}$

$6 + x = 16$

$\therefore x = 10$





- 68 A cuboid with a volume of  $(4x^2 + 12xy + 9y^2)$  cubic units and its base area of  $(2x + 3y)$  square units. Find its height in terms of  $x$  and  $y$

$$\begin{array}{r} 2x+3y \overline{) 4x^2+12xy+9y^2} \\ \underline{4x^2+6xy} \phantom{+9y^2} \\ 6xy+9y^2 \\ \underline{6xy+9y^2} \\ 0 \phantom{+9y^2} \\ 0 \end{array}$$

- 69 Find the image of the polygon ABCD by rotation  $R(0, -270^\circ)$  where  $A(2,0)$ ,  $B(2,4)$ ,  $C(0,4)$ ,  $D(0,2)$ .

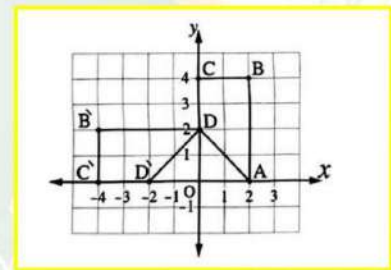
by rotation  $R(0, -270^\circ)$ :

$$A(2,0) \rightarrow \hat{A}(0,2)$$

$$B(2,4) \rightarrow \hat{B}(-4,2)$$

$$C(0,4) \rightarrow \hat{C}(-4,0)$$

$$D(0,2) \rightarrow \hat{D}(-2,0)$$



- 70 In an experiment to form a 2-digit number from the set of digits  $\{1,7,2\}$ , what is the probability of each of the following events:

1) A is the event that the sum of the two digits is 8 ?

2) B is the event that the tens digit is even?

3) C is the event that the tens digit = the once digit ?

$$1) \frac{2}{9}$$

$$2) \frac{1}{3}$$

$$3) \frac{1}{3}$$

- 71 Find the solution set for each of the following equations in  $Q$ :

a)  $x(x - 3) + 3(x - 27) = 0$

b)  $3x^3 - 4 = 2x^3 + 4$

$$a) x^2 - 3x + 3x - 81 = 0$$

$$x^2 - 81 = 0 \quad \text{----} \quad x^2 = 81$$

$$x = \pm \sqrt{81} = \pm 9 \quad \text{----}$$

The solution set =  $\{9, -9\}$

b)  $3x^3 - 4 = 2x^3 + 4$

$$3x^3 - 2x^3 = 4 + 4$$

$$x^3 = 8$$

$$x = \sqrt[3]{8} = 2$$

The solution set =  $\{2\}$





72 Find the solution set for each of the following in Q:

1)  $3x^3 + 3 = 84$

$3x^3 = 81$

$x^3 = 27$

$x = 3$

2)  $5x^2 - 2 = 43$

$5x^2 = 43 + 2$

$x^2 = 9$

$x = \pm 3$

انتهت الأسئلة مع أطيب الامنيات بالنجاح والتوفيق

محمود سعيد





# كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9





حمل الآن

مجاناً وحصرياً

# المراجعة رقم (2)

## الترم الثاني





**Unit 1****Q1 Choose the correct answer:-**

- 1)  $7^2 \times 7^3 = \dots\dots\dots$   
a)  $7^6$                       b)  $14^5$                       c)  $7^5$                       d)  $49^6$
- 2)  $5^8 \div 5^4 = \dots\dots\dots$   
a) 14                      b)  $5^4$                       c)  $1^2$                       d)  $5^2$
- 3)  $3^5 \times \dots\dots\dots = 3^{10}$   
a)  $3^2$                       b)  $3^5$                       c)  $3^{15}$                       d)  $3^3$
- 4)  $(-7)^9 \div \dots\dots\dots = (-7)^3$   
a)  $7^6$                       b)  $-7^3$                       c)  $(-7)^{12}$                       d)  $7^{27}$
- 5) Half of the number  $2^6 = \dots\dots\dots$   
a)  $1^6$                       b)  $2^3$                       c)  $1^3$                       d)  $2^5$
- 6) Which of the following equals  $(-9)^2$  ?  
a) -81                      b) -18                      c) 18                      d) 81
- 7) If  $7^n \times a^m = a \times 7 \times a \times a \times 7$ , what is the value of  $n + m$  ?  
a) 3                      b) 2                      c) 5                      d) 6
- 8) Which of the following equals  $-3^4$  ?  
a) -12                      b) -7                      c) -81                      d) 81
- 9) Which of the following equals  $2^{-4}$  ?  
a) -16                      b) 16                      c)  $\frac{1}{8}$                       d)  $\frac{1}{16}$
- 10) Which of the following is the multiplicative inverse of  $(-1)^3$  ?  
a)  $(-1)^3$                       b)  $(-1)^2$                       c)  $1^3$                       d)  $1^2$
- 11) Which of the following is the additive inverse of  $4^{-3}$  ?  
a)  $(-4)^3$                       b)  $(-4)^{-3}$                       c)  $4^3$                       d)  $4^{-3}$
- 12) Which of the following equals  $a^{-1} \times a^3$  ?  
a)  $a^2$                       b)  $a^4$                       c)  $\frac{1}{a^2}$                       d)  $\frac{1}{a^3}$



- 13) Which of the following equals  $\frac{y^{-2}}{y^{-6}}$  ?  
a)  $y^4$                       b)  $y^8$                       c)  $\frac{1}{y^4}$                       d)  $\frac{1}{y^8}$
- 14)  $5a^0 - (5a)^0 = \dots\dots\dots$   
a) 0                      b) 5                      c) 4                      d) 10
- 15) Which of the following equals the third of the number  $3^x$  ?  
a)  $1^x$                       b)  $(\frac{1}{3})^x$                       c)  $3^{x-1}$                       d)  $3^{x+1}$
- 16) Which of the following equals one quarter of the number  $2^{20}$  ?  
a)  $2^5$                       b)  $2^{10}$                       c)  $2^{18}$                       d)  $2^{19}$
- 17) Which of the following equals  $2^a + 2^a$  ?  
a)  $4^{2a}$                       b)  $2^a$                       c)  $2^{2a}$                       d)  $2^{a+1}$
- 18) Which of the following numbers is written scientific notation ?  
a)  $1.5 \times 10^{4.5}$                       b)  $15 \times 10^5$                       c)  $31.5 \times 10^5$                       d)  $3.15 \times 10^5$
- 19) Which of the following equals 8 million in scientific notation ?  
a)  $8 \times 10^7$                       b)  $8 \times 10^6$                       c)  $8 \times 10^8$                       d)  $8 \times 10^{-6}$
- 20) Which of the following equals 0.000073 ?  
a)  $7.3 \times 10^{-5}$                       b)  $7.3 \times 10^6$                       c)  $7.3 \times 10^5$                       d)  $7.3 \times 10^{-6}$
- 21) If  $6.3 \times 10^n = 0.00063$  , what is the value of n ?  
a) -4                      b) -3                      c) 4                      d) 3
- 22) If the number  $y \times 10^{-9}$  is written in scientific notation, then y = ...  
a) 6                      b) 60                      c) 0.6                      d) 600
- 23) Which of the following equals  $6000 \times 50$  ?  
a)  $30 \times 10^5$                       b)  $30 \times 10^3$                       c)  $300 \times 10^2$                       d)  $3 \times 10^5$
- 24) Which of the following is the greatest ?  
a)  $6.3 \times 10^5$                       b)  $5.2 \times 10^5$                       c)  $9.8 \times 10^4$                       d)  $7.3 \times 10^4$
- 25) If  $\sqrt{x} = 5$  , then x = .....  
a) 10                      b) 20                      c) 25                      d)  $\pm 25$



- 26) What is the value of  $\sqrt{(-5)^2}$  ?  
a) 5                      b) -5                      c) 25                      d)  $\pm 5$
- 27) Which of the following equals  $\sqrt{16x^2}$  ?  
a)  $4x$                       b)  $-4x$                       c)  $4x^2$                       d)  $4|x|$
- 28) Which of the following is the multiplicative inverse of  $\sqrt{\frac{9}{25}}$  ?  
a)  $-\frac{5}{3}$                       b)  $\frac{5}{3}$                       c)  $-\frac{3}{5}$                       d)  $\frac{3}{5}$
- 29) Which of the following is the additive inverse of  $-\sqrt{0.16}$  ?  
a) 0.4                      b) -0.4                      c) 0.8                      d) -0.8
- 30) If a , b are two square roots of the number c , then a + b=.....  
a) 2a                      b) 2b                      c) 0                      d) 1
- 31) If  $x = \sqrt{\frac{1}{9}}$  , what is the value of  $x^3$  ?  
a)  $\frac{1}{3}$                       b)  $\frac{1}{9}$                       c)  $\frac{1}{27}$                       d)  $\frac{1}{81}$
- 32)  $\sqrt{4 + \dots} = 4$   
a) 0                      b) 4                      c) 12                      d) 16
- 33)  $\sqrt{36} + \sqrt{16} = \sqrt{\dots}$   
a) 52                      b) 10                      c) 100                      d) 120
- 34) If  $x^3 = -27$  , what is the value of x ?  
a) 3                      b) -9                      c) -3                      d)  $\pm 3$
- 35) What is the value of  $\sqrt[3]{\sqrt{64}}$  ?  
a) 2                      b) 4                      c) 8                      d) 64
- 36) If  $\sqrt[3]{b} = -8$  , what is the value of b ?  
a) 2                      b) -2                      c) -512                      d) 64
- 37) If  $\sqrt[3]{y} = -\sqrt{25}$  , what is the value of y ?  
a) 5                      b) -5                      c) -125                      d) 125



38)  $|\sqrt[3]{-125}| = \sqrt{\dots\dots\dots}$

a) 5

b) -5

c) -25

d) 25

39) If  $a = 5^3$ , then what is the value of  $\sqrt[3]{a}$  ?

a) 5

b) 3

c) 125

d) 25

40) If  $x^2 = 64$ , then  $\sqrt[3]{x} = \dots\dots\dots$

a) 2

b) -2

c) 4

d)  $\pm 2$ 

41)  $\sqrt[3]{64 - \dots} = 3$

a) 9

b) 27

c) 37

d) 55

## Q2 Complete the following:-

1)  $(\frac{3}{5})^3 = \dots\dots\dots$

2)  $\frac{5 \times 5^3}{5^4} = \dots\dots\dots$

3)  $\frac{5^7 \times 5^2}{5^3 \times 5^5} = \dots\dots\dots$

4)  $\frac{(-a)^4 \times a^6}{(-a)^3 \times (-a)^5} = \dots\dots\dots$

5)  $\frac{x^7 \times x^{11}}{x^3 \times x^5} = \dots\dots\dots$

6) Double the number  $2^{10}$  is  $\dots\dots\dots$

7) half the number  $2^{10}$  is  $\dots\dots\dots$

8)  $7^{10} \times 7^{-10} = 3^{\dots\dots\dots}$

9)  $2x^{-2} y^{-3} = \frac{2}{\dots\dots\dots}$

10) If  $x = y$ , then  $(-3)^{x-y} = \dots\dots\dots$

11) the multiplicative inverse of  $5^{-1}$  is  $\dots\dots\dots$



### Q3 Answer the following:-

1) If  $a=2$  ,  $b=-5$  , find the numerical value of

a)  $3b^2$

b)  $(3b)^2$

c)  $a^3 + b^3$

d)  $(a + b)^3$

2) Find the missing number :-

a)  $a^{\dots} \times a^7 = a^9$

b)  $b^{-3} \times b^{\dots} = 1$

c)  $\frac{b^{\dots}}{b^4} = b^3$

3) Find the value of X in Z of the following equations :-

a)  $\sqrt{x} + 1 = 7$

b)  $\sqrt{x} = 9$

c)  $2x^2 + 1 = 33$



## Unit 2

### Q1 Choose the correct answer:-

- 1) What is the inequality that expresses the following situation , Farida needs at least two hours to complete the homework ?  
 a)  $x < 2$                       b)  $x > 2$                       c)  $x \leq 2$                       d)  $x \geq 2$
- 2) What is the inequality that expresses that the temperature X is less than  $40^\circ$  ?  
 a)  $x < 40^\circ$                       b)  $x > 40^\circ$                       c)  $x \leq 40^\circ$                       d)  $x \geq 40^\circ$
- 3) What is the inequality that expresses that twice the number X is less than 5 ?  
 a)  $x - 2 < 5$                       b)  $x + 2 > 5$                       c)  $2x < 5$                       d)  $2x > 5$
- 4) If  $-x < 5$  , then which of the following is correct ?  
 a)  $x < 5$                       b)  $x > 5$                       c)  $x < -5$                       d)  $x > -5$
- 5) If  $X \in \mathbb{N}$  , what is the solution set of inequality  $-X > 3$  ?  
 a)  $\{-4, -5, \dots\}$                       b)  $\{4, 5, 6, \dots\}$                       c)  $\{-3\}$                       d)  $\emptyset$
- 6) If  $X - 1 > 4$  , then  $X = \dots\dots\dots$   
 a) 4                      b) 3                      c) 5                      d) 7
- 7) Which of the following is equivalent to the inequality  $\frac{X}{3} > 4$  ?  
 a)  $x < 12$                       b)  $x > 12$                       c)  $x < \frac{4}{3}$                       d)  $x > \frac{4}{3}$
- 8) If  $X > Y$  , then  $\frac{1}{X} \dots\dots\dots \frac{1}{Y}$   
 a)  $<$                       b)  $>$                       c)  $=$                       d)  $\geq$
- 9)  $(-3x^2)(4x^3) = \dots\dots\dots$   
 a)  $12x$                       b)  $12x^5$                       c)  $-12x^5$                       d)  $-12x^6$
- 10)  $(3a^4 b)(5a^2 b^2)(2a^3) = \dots\dots\dots$   
 a)  $30a^{10} b^2$                       b)  $30a^9 b^3$                       c)  $60a^{11} b^3$                       d)  $15a^{10} b^3$

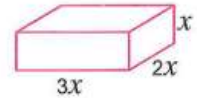
11) If the side length of a cube is  $2b$ , what is volume of the cube?

- a)  $2b^3$       b)  $8b^3$       c)  $4b^3$       d)  $4b^2$

12)  $2(x+3) = \dots\dots\dots$

- a)  $2x+3$       b)  $2x^2+6x$       c)  $2x+6$       d)  $x+6$

13) What is the volume of the opposite cuboid ?



- a)  $6x^3$       b)  $6x$       c)  $5x^3$       d)  $6x^2$

14) What is the area of the opposite rectangle ?



- a)  $12x-1$       b)  $12x^2-4x$       c)  $12x+4x$       d)  $(12x)(4x)$

15)  $x(x-1) + x = \dots\dots\dots$

- a)  $2x^2$       b)  $x^2-x$       c)  $x(2x-1)$       d)  $x^2$

16) If  $a+3b=7$ ,  $c=3$ , then what is the value of  $a+3(b+c)$

- a) 10      b) 13      c) 15      d) 16

17) What is the number of terms in the expression resulting from the product of  $(x-3)(x+4)$  in the simplest form ?

- a) 1      b) 2      c) 3      d) 4

18) If  $(x-5)(x+2) = x^2+bx+c$ , then  $c = \dots\dots\dots$

- a) 10      b) 7      c) -10      d) -7

19) If  $(3x-7)^2 = ax^2+bx+c$ , then  $b = \dots\dots\dots$

- a) 21      b) 42      c) -21      d) -42

20) I If  $(x-3)(x+3) = x^2-k$ , then  $k = \dots\dots\dots$

- a) 6      b) 9      c) -6      d) -9

21) What is the coefficient of **ab** in the expression  $(4a-5b)^2$  ?

- a) 20      b) 40      c) -20      d) -40



- 22) If  $x-y=5$  ,  $x+y=15$  , then what is the value of  $x^2-y^2$  ?  
 a) 10                      b) 20                      c) 3                      d) 75
- 23) If  $(x+y)^2=16$  ,  $xy=3$  then what is the value of  $x^2+y^2$  ?  
 a) 10                      b) 48                      c) 13                      d)  $5\frac{1}{3}$
- 24) If  $y^2=7$  ,  $x^2=10$  , then what is the value of  $(x+y)(x-y)$  ?  
 a) 17                      b) 17                      c) 3                      d) -3
- 25) If  $(x+y)^2=26$  ,  $x^2+y^2=20$  , what is the value of  $xy$  ?  
 a) 3                      b) 6                      c) 9                      d) 12
- 26)  $-12x^3 \div (-4x) = \dots\dots\dots$   
 a)  $-3x^2$                       b)  $3x^2$                       c)  $48x^4$                       d)  $-3x$
- 27) If  $\frac{8x}{a} = 1$  , then  $a = \dots\dots\dots$   
 a) 1                      b) -1                      c)  $8x$                       d)  $-8x$
- 28)  $\frac{a+b}{c} = \dots\dots\dots$   
 a)  $\frac{a}{c} + b$                       b)  $a + \frac{b}{c}$                       c)  $\frac{ab}{c}$                       d)  $\frac{a}{c} + \frac{b}{c}$
- 29)  $(x^2 \div x) + x = \dots\dots\dots$   
 a)  $2x$                       b) 0                      c)  $x+1$                       d)  $2x+1$
- 30)  $(x^3+x^2) \div x^2 = \dots\dots\dots$   
 a)  $x$                       b) 0                      c)  $x+1$                       d)  $2x+1$
- 31)  $\frac{3x^2-6x}{3x} = \dots\dots\dots$   
 a)  $-x^2$                       b)  $-x$                       c)  $x-2$                       d)  $x^2-2x$
- 32)  $10ab^2 \div \dots\dots\dots = -2ab$   
 a)  $-5b$                       b)  $5b$                       c)  $-5b^2$                       d)  $-12ab$

## Q2 Complete the following :-

- 1)  $6x^2y = 2x \times \dots\dots\dots$
- 2)  $-4b^3c^4 = 2bc^2 \times \dots\dots\dots$
- 3)  $(x+2)(x+3) = \dots\dots\dots + 5x + 6$
- 4)  $(a-7)(a-3) = a^2 - \dots\dots\dots + \dots\dots\dots$
- 5)  $\dots\dots\dots \div 7a^3 = -5a^2$
- 6)  $(15a+5) \div 5 = \dots\dots\dots$
- 7)  $\frac{-24x^4}{\dots\dots\dots} = -6x$

## Q3 Answer the following :-

1) Find the solution set in  $\mathbb{N}$  :-

- a)  $x - 2 > 1$
- b)  $2x - 5 > -7$

2) Find the solution set in  $\mathbb{Z}$  :-

- a)  $2x + 5 \leq 11$
- b)  $5 - 3x \geq 14$



3) Find the solution set in  $\mathbb{Q}$  :-

a)  $x - 2 \leq 3x + 7$

b)  $3(2x - 1) > 9$

4) Find in the simplest form :-

a)  $(-3a^3b^2)(-2ab^4)$

b)  $-3x(x-5)$

c)  $-3a^2b(2a b^2 - 2b)$

d)  $(3x+1)(x-3)$

e)  $(x-7)(2x-1)$

f)  $(x-6)^2$

g)  $(2x-9)^2$

h)  $-32a^3b^6 \div (-4a^3b^2)$

i)  $(2x - 6x^2 - 8x^3) \div (2x)$

j)  $\frac{18x^2y^2}{-2x^2y}$

k)  $\frac{3xy^2 + 6x^2y - 9x^2y^2}{3xy}$

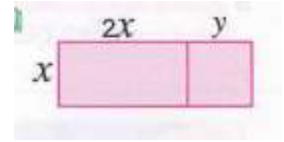
l)  $\frac{x^2}{-x} + \frac{-4x}{x} - \frac{3x^3}{x^2}$

m)  $(X^2 + 5x + 6) \div (x + 2)$

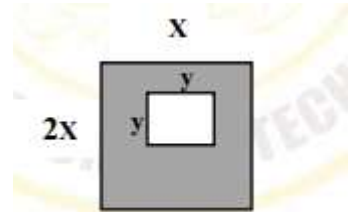
5) Find in the simplest form  $2a(3a-1) + 3a(a+2)$  then find the value of the expression if  $a=2$ .



- 6) Find in the simplest form the expression which represents the shaded part .



- 7) Find in the simplest form the expression which represents the shaded part .



- 8) If:  $(x - 5)(x + 5) = x^2 + bx + c$  , then what is the value of  $b$  ?
- 9) If  $(2x + 1)$  is a factor of the expression  $(2x^2 - 7x - 4)$ , then find the other factor ?
- 10) Divide  $(x^2 - 64)$  by  $(x - 8)$

## Reflection

$(X,Y)$  reflect by X-axis  $(X,-Y)$

$(X,Y)$  reflect by Y-axis  $(-X,Y)$

$(X,0)$  reflect by X-axis  $(X,0)$  same point.

$(0,Y)$  reflect by Y-axis  $(0,Y)$  same point.

## Translation

Change X-coordinate

To move the point left & right

Change Y-coordinate

To move the point up & down

## Rotation

$(X,Y)$  by rotation  $(O, 90^\circ)$   $(-Y,X)$

$(X,Y)$  by rotation  $(O, -90^\circ), (O, 270^\circ)$   $(Y,-X)$

$(X,Y)$  by rotation  $(O, \pm 180^\circ)$   $(-X,-Y)$

$(X,Y)$  by rotation  $(O, \pm 360^\circ)$   $(X,Y)$



**Q1 Choose the correct answer:-**

1) If the area of rhombus is  $100 \text{ cm}^2$  , what is the product of its diagonals ?

- a) 50                      b) 25                      c) 100                      d) 200

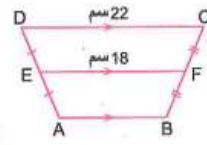
2) If the area of rhombus is  $20 \text{ cm}^2$  and the length of one of its diagonals is  $5 \text{ cm}$  , what is the length of the other diagonal diagonals ?

- a) 4cm                      b) 8cm                      c) 10cm                      d) 15cm

3) Area of square whose side length ..... area of square whose diagonal is  $5 \text{ cm}$

- a) =                      b) >                      c) <

4) from the opposite figure ,  
what is the length of AB ?



- a) 26cm                      b) 28cm                      c) 20cm                      d) 14cm

5) Which of the following is the image of the point  $(-1, 3)$  by reflection in the X-axis ?

- a)  $(-1, -3)$                       b)  $(1, -3)$                       c)  $(1, 3)$                       d)  $(3, -1)$

6) Which of the following is the image of the point  $(a, b)$  by reflection in the X-axis ?

- a)  $(-a, -b)$                       b)  $(-a, b)$                       c)  $(a, -b)$                       d)  $(b, -a)$

7) Which of the following points remains the same when reflected in the Y-axis ?

- a)  $(2, -3)$                       b)  $(3, 2)$                       c)  $(0, 7)$                       d)  $(-3, 0)$

- 8) Which of the following points remains the same when reflected in the X-axis ?  
a) (2, -3)      b) (3, 2)      c) (0, 7)      d) (-3, 0)
- 9) If the image of the point (7, 3a-12) is the same when reflected in X-axis , what is the value of a?  
a) 4      b) 12      c) -4      d) 3
- 10) What is the image of the point (2, -3) by reflection in the X-axis followed by reflection in the Y-axis ?  
a) (-2, -3)      b) (2, 3)      c) (-2, 3)      d) (3, 2)
- 11) What is the image of the point (1, 7) by translation of 3 units in the positive direction of Y-axis ?  
a) (4, 7)      b) (1, 10)      c) (1, 4)      d) (-2, 7)
- 12) What is the image of the point (5, -2) by translation of 5 units in the negative direction of X-axis ?  
a) (10, -2)      b) (5, -7)      c) (5, -3)      d) (0, -2)
- 13) What is the image of the point (2, -1) by translation (x-3 , y+4)?  
a) (-3, 4)      b) (-1, 3)      c) (-1, 5)      d) (5, 3)
- 14) What is the image of the point (0, -3) by translation (-1, 2)?  
a) (-1, 1)      b) (-1, -1)      c) (1, 1)      d) (1, -1)
- 15) What is the image of the point (-1, 0) by translation (1, 0) followed by translation (2, -3)?  
a) (0, 0)      b) (1, 0)      c) (-1, 0)      d) (2, -3)
- 16) What is the image of the point (-7, 2) by rotation R(O, 180°) ?  
a) (7, -2)      b) (-2, 7)      c) (-2, -7)      d) (-7, -2)



- 17) Identify rotation is the rotation around the origin  $O$  by an angle of measure .....
- a)  $90^\circ$       b)  $180^\circ$       c)  $270^\circ$       d)  $360^\circ$
- 18) What is the image of the point  $(-4, 2)$  when rotated around the origin  $O$  by an angle of measure  $90^\circ$  anti-clockwise ?
- a)  $(-2, 4)$       b)  $(-2, -4)$       c)  $(4, 2)$       d)  $(-4, -2)$
- 19) Which of the following rotations makes the point  $A'$   $(X, -Y)$  the image of  $A$   $(X, -Y)$  ?
- a)  $R(O, 90^\circ)$       b)  $R(O, -90^\circ)$       c)  $R(O, 180^\circ)$       d)  $R(O, 360^\circ)$
- 20) What is the image of the point  $(-4, 5)$  under rotation  $R(O, 90^\circ)$  followed by rotation  $R(O, 180^\circ)$  ?
- a)  $(5, 4)$       b)  $(5, -4)$       c)  $(4, -5)$       d)  $(-5, -4)$

## Q2 Answer the following :-

- 1) Find the area of the following figures :-



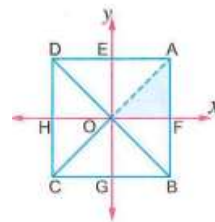
- 2) Find the area of rhombus with diagonal lengths of 6 cm and 10 cm.
- 3) Find the height of a rhombus with side length of 15 cm and diagonal lengths of 18 cm and 24 cm.
- 4) A trapezium with a height of 3 cm and a middle base length of 10 cm, find its area.
- 5) A trapezium has an area of 63 square meter and the length of its parallel bases are 10 m and 8 m. Calculate its height.



6) From the opposite figure :-

a) The image of  $\triangle AFO$  by reflection in the Y-axis is .....

- a)  $\triangle AOE$       b)  $\triangle DHO$       c)  $\triangle BFO$       d)  $\triangle OBG$



b) The image of  $\triangle AFO$  by reflection in the X-axis is .....

- a)  $\triangle BFO$       b)  $\triangle AOE$       c)  $\triangle DHO$       d)  $\triangle CHO$

7) Draw an angle whose measure is  $45^\circ$  then bisect it.

8) Draw an angle whose measure is  $120^\circ$  then bisect it.

9) Draw line segment AB whose length = 5cm then bisect it.

10) Draw the triangle ABC that  $AB=7\text{cm}$  ,  $BC=9\text{cm}$  ,  $AC=4\text{cm}$  , then determine the type of triangle according its angles.

11) Draw the triangle ABC that  $AB=5\text{cm}$  ,  $m(\angle A)=120^\circ$  ,  $m(\angle B)=30^\circ$  , then determine the type of triangle according its sides.

12) Draw the triangle ABC that  $AB=7\text{cm}$  ,  $BC=5\text{cm}$  ,  $m(\angle ABC)=80^\circ$ .

13) Draw the triangle ABC that  $A(-6,6)$  ,  $B(-2,2)$  ,  $C(4,1)$  , then draw its image by reflection Y-axis.

- 14)** Draw the triangle ABC with vertices: A(4,4) , B(0,2) , C(6,-2) , then draw its image by translation (X-4 , Y+1).
- 15)** Draw the triangle ABC with vertices: A (-1,2), B (3,1),C (0,4), then draw its image under rotation R (O,90°)



**Unit 4****Q1 Choose the correct answer:-**

- 1) Drawing a card from a set of identical numbered cards without knowing the numbers written on the cards :
- a) a random experiment      b) not a random experiment      c) an impossible event      d) a certain event
- 2) Selecting a ball from a basket containing 5 identical balls all are yellow :
- a) a random experiment      b) not a random experiment      c) an impossible event      d) a simple event
- 3) In the experiment of choosing a digit of the number 5742 randomly , what is the sample space ?
- a) {2, 4, 5, }      b) {2, 4, 5, 7}      c) {5742}      d) {57, 74, 42}
- 4) In the experiment of rolling a fair die once, which of the following events is a simple event ?
- a) event of getting a number greater than 6      b) event of getting an even prime number
- c) event of getting a number less than or equal to 2      d) event of getting an odd number

- 5) When drawing a card from 10 identical cards numbered from 1 to 10 , which of the following is the event of drawing a number divisible by 2 ?
- a) {2, 4, 6, 8, }    b) {2, 6}    c) {2, 4, 6, 8, 10}    d) {2, 4, 6}
- 6) In the experiment of rolling a fair die once, and observing the number shown on the upper face , which of the following events is a certain event ?
- a) {2, 4, 6}    b) {1}    c) {1, 3, 5}    d) {1, 2, 3, 4, 5, 6}
- 7) If you are thinking of purchasing one pen from a set of identical pens containing 5 red pens, 2 blue pens, and 3 black pens, and you select this pen randomly what is the probability that the pen is blue?
- a)  $\frac{1}{4}$     b)  $\frac{1}{5}$     c)  $\frac{2}{15}$     d)  $\frac{1}{15}$
- 8) In an experiment of rolling a fair die once , what is the probability of getting a number divisible by 2 ?
- a) zero    b)  $33\frac{1}{3}\%$     c) 50 %    d) 70 %
- 9) If A is an event from a random experiment with equal chances of occurrence, and the probability of event A is 40%, the number of elements of the sample space is 15, what is the number of Elements of event A ?
- a) 2    b) 4    c) 6    d) 10



10) A ball is drawn randomly from a box containing 35 identical balls, of which 7 are white and the remainder are red and black, What is the probability that the drawn ball is not white ?

- a)  $\frac{1}{6}$                       b)  $\frac{1}{5}$                       c)  $\frac{4}{5}$                       d)  $\frac{34}{35}$

11) A card carrying a letter from the word "NORHAN" is drawn randomly. What is the probability that this letter is (N)?

- a)  $\frac{1}{6}$                       b)  $\frac{1}{3}$                       c)  $\frac{2}{3}$                       d)  $\frac{2}{5}$

12) In an experiment of rolling a fair die once, what is the probability of appearing a number less than 5?

- a)  $\frac{1}{6}$                       b)  $\frac{1}{3}$                       c)  $\frac{2}{3}$                       d)  $\frac{1}{2}$

13) Which of the following could be a probability of an event occurring?

- a) 1.2                      b) -0.4                      c)  $\frac{2}{3}$                       d) 213%

14) In an experiment of rolling a fair die and observing the upper face, the probability of rolling a number that is not equal to 2 is

- a)  $\frac{1}{6}$                       b)  $\frac{1}{3}$                       c)  $\frac{2}{3}$                       d)  $\frac{5}{6}$

- 15) If a fair coin is tossed 400 times, the closest number of times that heads is expected to appear from the following is
- a) 300                      b) 90                      c) 188                      d) 270

## Q2 Complete the following:-

- 1) In the experiment of tossing a fair coin twice in consecutive where the head is H and the tail is T, the sample space for this experiment is .....
- 2) In the experiment of rolling a fair die twice in consecutive and observing the number showing on the upper face, the number of elements in the sample space is .....
- 3) In the experiment of forming a 2-digit number from the set of numbers {2, 3, 4} the number of elements in the sample space is .....
- 4) If the probability of an event occurring equals the probability of the same event not occurring, then the probability of that event = .....
- 5) The probability of an impossible event = .....
- 6) The probability of a certain event = .....



### Q3 Answer the following:-

1) A card was drawn randomly from a set of identical cards numbered from 5 to 14 , find the probability that the drawn card carries:

- a) an odd number.
- b) An even number greater than 9.
- c) A prime number.
- d) A perfect square number.
- e) A number less than 5.

2) The opposite figure represents a spinning disc game.

- a) Calculate the probability that the pointer stops at the colour:

(a) Red.                      (b) Green.                      (c) Yellow.



- b) Calculate the probability that the pointer does not stop at the colour red.

# Answers

## Q1 Choose the correct answer:-

- 1)  $7^2 \times 7^3 = \dots\dots\dots$   
 a)  $7^6$                       b)  $14^5$                       **c)  $7^5$**                       d)  $49^6$
- 2)  $5^8 \div 5^4 = \dots\dots\dots$   
 a) 14                      **b)  $5^4$**                       c)  $1^2$                       d)  $5^2$
- 3)  $3^5 \times \dots\dots\dots = 3^{10}$   
 a)  $3^2$                       **b)  $3^5$**                       c)  $3^{15}$                       d)  $3^3$
- 4)  $(-7)^9 \div \dots\dots\dots = (-7)^3$   
**a)  $7^6$**                       b)  $-7^3$                       c)  $(-7)^{12}$                       d)  $7^{27}$
- 5) Half of the number  $2^6 = \dots\dots\dots$   
 a)  $1^6$                       b)  $2^3$                       c)  $1^3$                       **d)  $2^5$**
- 6) Which of the following equals  $(-9)^2$  ?  
 a) -81                      b) -18                      c) 18                      **d) 81**
- 7) If  $7^n \times a^m = a \times 7 \times a \times a \times 7$ , what is the value of  $n + m$  ?  
 a) 3                      b) 2                      **c) 5**                      d) 6
- 8) Which of the following equals  $-3^4$  ?  
 a) -12                      b) -7                      **c) -81**                      d) 81
- 9) Which of the following equals  $2^{-4}$  ?  
 a) -16                      b) 16                      c)  $\frac{1}{8}$                       **d)  $\frac{1}{16}$**
- 10) Which of the following is the multiplicative inverse of  $(-1)^3$  ?  
**a)  $(-1)^3$**                       b)  $(-1)^2$                       c)  $1^3$                       d)  $1^2$
- 11) Which of the following is the additive inverse of  $4^{-3}$  ?  
 a)  $(-4)^3$                       **b)  $(-4)^{-3}$**                       c)  $4^3$                       d)  $4^{-3}$
- 12) Which of the following equals  $a^{-1} \times a^3$  ?  
**a)  $a^2$**                       b)  $a^4$                       c)  $\frac{1}{a^2}$                       d)  $\frac{1}{a^3}$



13) Which of the following equals  $\frac{y^{-2}}{y^{-6}}$  ?

a)  $y^4$

b)  $y^8$

c)  $\frac{1}{y^4}$

d)  $\frac{1}{y^8}$

14)  $5a^0 - (5a)^0 = \dots\dots\dots$

a) 0

b) 5

c) 4

d) 10

15) Which of the following equals the third of the number  $3^x$  ?

a)  $1^x$

b)  $(\frac{1}{3})^x$

c)  $3^{x-1}$

d)  $3^{x+1}$

16) Which of the following equals one quarter of the number  $2^{20}$  ?

a)  $2^5$

b)  $2^{10}$

c)  $2^{18}$

d)  $2^{19}$

17) Which of the following equals  $2^a + 2^a$  ?

a)  $4^{2a}$

b)  $2^a$

c)  $2^{2a}$

d)  $2^{a+1}$

18) Which of the following numbers is written scientific notation ?

a)  $1.5 \times 10^{4.5}$

b)  $15 \times 10^5$

c)  $31.5 \times 10^5$

d)  $3.15 \times 10^5$

19) Which of the following equals 8 million in scientific notation ?

a)  $8 \times 10^7$

b)  $8 \times 10^6$

c)  $8 \times 10^8$

d)  $8 \times 10^{-6}$

20) Which of the following equals 0.000073 ?

a)  $7.3 \times 10^{-5}$

b)  $7.3 \times 10^6$

c)  $7.3 \times 10^5$

d)  $7.3 \times 10^{-6}$

21) If  $6.3 \times 10^n = 0.00063$  , what is the value of n ?

a) -4

b) -3

c) 4

d) 3

22) If the number  $y \times 10^{-9}$  is written in scientific notation, then  $y = \dots$

a) 6

b) 60

c) 0.6

d) 600

23) Which of the following equals  $6000 \times 50$  ?

a)  $30 \times 10^5$

b)  $30 \times 10^3$

c)  $300 \times 10^2$

d)  $3 \times 10^5$

24) If  $\sqrt{x} = 5$  , then  $x = \dots\dots\dots$

a) 10

b) 20

c) 25

d)  $\pm 25$

25) Which of the following is the greatest ?

a)  $6.3 \times 10^5$

b)  $5.2 \times 10^5$

c)  $9.8 \times 10^4$

d)  $7.3 \times 10^4$



26) What is the value of  $\sqrt{(-5)^2}$  ?

a) 5

b) -5

c) 25

d)  $\pm 5$

27) Which of the following equals  $\sqrt{16x^2}$  ?

a)  $4x$

b)  $-4x$

c)  $4x^2$

d)  $4|x|$

28) Which of the following is the multiplicative inverse of  $\sqrt{\frac{9}{25}}$  ?

a)  $-\frac{5}{3}$

b)  $\frac{5}{3}$

c)  $-\frac{3}{5}$

d)  $\frac{3}{5}$

29) Which of the following is the additive inverse of  $-\sqrt{0.16}$  ?

a) 0.4

b) -0.4

c) 0.8

d) -0.8

30) If a , b are two square roots of the number c , then a + b=.....

a) 2a

b) 2b

c) 0

d) 1

31) If  $x = \sqrt{\frac{1}{9}}$  , what is the value of  $x^3$  ?

a)  $\frac{1}{3}$

b)  $\frac{1}{9}$

c)  $\frac{1}{27}$

d)  $\frac{1}{81}$

32)  $\sqrt{4 + \dots} = 4$

a) 0

b) 4

c) 12

d) 16

33)  $\sqrt{36} + \sqrt{16} = \sqrt{\dots}$

a) 52

b) 10

c) 100

d) 120

34) If  $x^3 = -27$  , what is the value of x ?

a) 3

b) -9

c) -3

d)  $\pm 3$

35) What is the value of  $\sqrt[3]{\sqrt{64}}$  ?

a) 2

b) 4

c) 8

d) 64

36) If  $\sqrt[3]{b} = -8$  , what is the value of b ?

a) 2

b) -2

c) -512

d) 64

37) If  $\sqrt[3]{y} = -\sqrt{25}$  , what is the value of y ?

a) 5

b) -5

c) -125

d) 125



38)  $|\sqrt[3]{-125}| = \sqrt{\dots\dots\dots}$

a) 5

b) -5

c) -25

d) 25

39) If  $a = 5^3$ , then what is the value of  $\sqrt[3]{a}$  ?

a) 5

b) 3

c) 125

d) 25

40) If  $x^2 = 64$ , then  $\sqrt[3]{x} = \dots\dots\dots$

a) 2

b) -2

c) 4

d)  $\pm 2$ 

41)  $\sqrt[3]{64 - \dots} = 3$

a) 9

b) 27

c) 37

d) 55

## Q2 Complete the following:-

1)  $(\frac{3}{5})^3 = \frac{27}{125}$

2)  $\frac{5 \times 5^3}{5^4} = \frac{5^4}{5^4} = 5^0 = 1$

3)  $\frac{5^7 \times 5^2}{5^3 \times 5^5} = \frac{5^9}{5^8} = 5$

4)  $\frac{(-a)^4 \times a^6}{(-a)^3 \times (-a)^5} = \frac{a^{10}}{a^8} = a^2$

5)  $\frac{x^7 \times x^{11}}{x^3 \times x^5} = \frac{x^{18}}{x^8} = x^{10}$

6) Double the number  $2^{10}$  is  $2^{11}$

7) half the number  $2^{10}$  is  $2^9$

8)  $7^{10} \times 7^{-10} = 3^0$

9)  $2x^{-2} y^{-3} = \frac{2}{x^2 y^3}$

10) If  $x = y$ , then  $(-3)^{x-y} = 1$

11) the multiplicative inverse of  $5^{-1}$  is 5

### Q3 Answer the following:-

1) If  $a=2$  ,  $b=-5$  , find the numerical value of

a)  $3b^2$

a)  $3 \times (-5)^2 = 75$

b)  $(3b)^2$

b)  $(3 \times -5)^2 = 225$

c)  $a^3 + b^3$

c)  $2^3 + (-5)^3 = -117$

d)  $(a + b)^3$

d)  $[2 + (-5)] = -27$

2) Find the missing number :-

a)  $a^2 \times a^7 = a^9$

b)  $b^{-3} \times b^3 = 1$

c)  $\frac{b^7}{b^4} = b^3$

3) Find the value of X in Z of the following equations :-

a)  $\sqrt{x} + 1 = 7$

$$\sqrt{x} = 7 - 1$$

$$\sqrt{x} = 6 , x = 36$$

b)  $\sqrt{x} = 9 , x = 81$

c)  $2x^2 + 1 = 33$

$$2x^2 = 33 - 1$$

$$2x^2 = 32$$

$$x^2 = 32 \div 2 = 16 , x = 4$$





## Unit 2

### Q1 Choose the correct answer:-

- 1) What is the inequality that expresses the following situation , Farida needs at least two hours to complete the homework ?  
 a)  $x < 2$       b)  $x > 2$       c)  $x \leq 2$       **d)  $x \geq 2$**
- 2) What is the inequality that expresses that the temperature X is less than  $40^\circ$  ?  
**a)  $x < 40^\circ$**       b)  $x > 40^\circ$       c)  $x \leq 40^\circ$       d)  $x \geq 40^\circ$
- 3) What is the inequality that expresses that twice the number X is less than 5 ?  
 a)  $x - 2 < 5$       b)  $x + 2 > 5$       **c)  $2x < 5$**       d)  $2x > 5$
- 4) If  $-x < 5$  , then which of the following is correct ?  
 a)  $x < 5$       b)  $x > 5$       c)  $x < -5$       **d)  $x > -5$**
- 5) If  $X \in \mathbb{N}$  , what is the solution set of inequality  $-X > 3$  ?  
 a)  $\{-4, -5, \dots\}$       **b)  $\{4, 5, 6, \dots\}$**       c)  $\{-3\}$       d)  $\emptyset$
- 6) If  $X - 1 > 4$  , then  $X =$  .....  
 a) 4      b) 3      c) 5      **d) 7**
- 7) Which of the following is equivalent to the inequality  $\frac{X}{3} > 4$  ?  
 a)  $x < 12$       **b)  $x > 12$**       c)  $x < \frac{4}{3}$       d)  $x > \frac{4}{3}$
- 8) If  $X > Y$  , then  $\frac{1}{X}$  .....  $\frac{1}{Y}$   
**a)  $<$**       b)  $>$       c)  $=$       d)  $\geq$
- 9)  $(-3x^2)(4x^3) =$  .....  
 a)  $12x$       b)  $12x^5$       **c)  $-12x^5$**       d)  $-12x^6$
- 10)  $(3a^4 b)(5a^2 b^2)(2a^3) =$  .....  
 a)  $30a^{10} b^2$       **b)  $30a^9 b^3$**       c)  $60a^{11} b^3$       d)  $15a^{10} b^3$

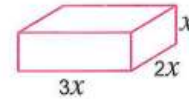
11) If the side length of a cube is  $2b$ , what is volume of the cube?

- a)  $2b^3$       **b)  $8b^3$**       c)  $4b^3$       d)  $4b^2$

12)  $2(x+3) = \dots\dots\dots$

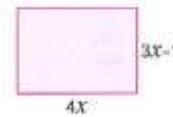
- a)  $2x+3$       b)  $2x^2+6x$       **c)  $2x+6$**       d)  $x+6$

13) What is the volume of the opposite cuboid ?



- a)  $6x^3$**       b)  $6x$       c)  $5x^3$       d)  $6x^2$

14) What is the area of the opposite rectangle ?



- a)  $12x-1$       **b)  $12x^2-4x$**       c)  $12x+4x$       d)  $(12x)(4x)$

15)  $x(x-1) + x = \dots\dots\dots$

- a)  $2x^2$       b)  $x^2-x$       c)  $x(2x-1)$       **d)  $x^2$**

16) If  $a+3b=7$ ,  $c=3$ , then what is the value of  $a+3(b+c)$

- a) 10      b) 13      c) 15      **d) 16**

17) What is the number of terms in the expression resulting from the product of  $(x-3)(x+4)$  in the simplest form ?

- a) 1      b) 2      **c) 3**      d) 4

18) If  $(x-5)(x+2) = x^2+bx+c$ , then  $c = \dots\dots\dots$

- a) 10      b) 7      **c) -10**      d) -7

19) If  $(3x-7)^2 = ax^2+bx+c$ , then  $b = \dots\dots\dots$

- a) 21      b) 42      c) -21      **d) -42**

20) I If  $(x-3)(x+3) = x^2-k$ , then  $k = \dots\dots\dots$

- a) 6      **b) 9**      c) -6      d) -9

21) What is the coefficient of **ab** in the expression  $(4a-5b)^2$  ?

- a) 20      b) 40      c) -20      **d) -40**



22) If  $x-y=5$  ,  $x+y=15$  , then what is the value of  $x^2-y^2$  ?

- a) 10                      b) 20                      c) 3                      d) 75

23) If  $(x+y)^2=16$  ,  $xy=3$  then what is the value of  $x^2+y^2$  ?

- a) 10                      b) 48                      c) 13                      d)  $5\frac{1}{3}$

24) If  $y^2=7$  ,  $x^2=10$  , then what is the value of  $(x+y)(x-y)$  ?

- a) 17                      b) 17                      c) 3                      d) -3

25) If  $(x+y)^2=26$  ,  $x^2+y^2=20$  , what is the value of  $xy$  ?

- a) 3                      b) 6                      c) 9                      d) 12

26)  $-12x^3 \div (-4x) = \dots\dots\dots$

- a)  $-3x^2$                       b)  $3x^2$                       c)  $48x^4$                       d)  $-3x$

27) If  $\frac{8x}{a} = 1$  , then  $a = \dots\dots\dots$

- a) 1                      b) -1                      c)  $8x$                       d)  $-8x$

28)  $\frac{a+b}{c} = \dots\dots\dots$

- a)  $\frac{a}{c} + b$                       b)  $a + \frac{b}{c}$                       c)  $\frac{ab}{c}$                       d)  $\frac{a}{c} + \frac{b}{c}$

29)  $(x^2 \div x) + x = \dots\dots\dots$

- a)  $2x$                       b) 0                      c)  $x+1$                       d)  $2x+1$

30)  $(x^3+x^2) \div x^2 = \dots\dots\dots$

- a)  $x$                       b) 0                      c)  $x+1$                       d)  $2x+1$

31)  $\frac{3x^2-6x}{3x} = \dots\dots\dots$

- a)  $-x^2$                       b)  $-x$                       c)  $x-2$                       d)  $x^2-2x$

32)  $10ab^2 \div \dots\dots\dots = -2ab$

- a)  $-5b$                       b)  $5b$                       c)  $-5b^2$                       d)  $-12ab$

## Q2 Complete the following :-

- 1)  $6x^2y = 2x \times 3xy$
- 2)  $-4b^3c^4 = 2bc^2 \times -2b^2c^2$
- 3)  $(x+2)(x+3) = x^2 + 5x + 6$
- 4)  $(a-7)(a-3) = a^2 - 10a + 21$
- 5)  $-35a^5 \div 7a^3 = -5a^2$
- 6)  $(15a+5) \div 5 = 3a + 1$
- 7)  $\frac{-24x^4}{4x} = -6x^3$

## Q3 Answer the following :-

- 1) Find the solution set in  $\mathbb{N}$  :-

a)  $x - 2 > 1$

$$x > 2+1$$

$$x > 3$$

$$S.S = \{4, 5, 6, \dots, \dots, \dots\}$$

b)  $2x - 5 > -7$

$$2x > -7+5$$

$$2x > -2$$

$$x > -2 \div 2$$

$$x > -1$$

$$S.S = \{0, 1, 2, 3, \dots, \dots, \dots\}$$





2) Find the solution set in  $\mathbb{Z}$  :-

a)  $2x + 5 \leq 11$

$$2x \leq 11 - 5$$

$$2x \leq 6$$

$$x \leq 6 \div 2$$

$$x \leq 3$$

$$S.S = \{3, 2, 1, 0, -1, -2, \dots\}$$

b)  $5 - 3x \geq 14$

$$5 - 3x \geq 14$$

$$-3x \geq 14 - 5$$

$$-3x \geq 9$$

$$x \geq 9 \div (-3)$$

$$x \leq -3 \quad S.S = \{-3, -4, -5, \dots\}$$

3) Find the solution set in  $\mathbb{Q}$  :-

a)  $x - 2 \leq 3x + 7$

$$x - 3x \leq 7 + 2$$

$$-2x \leq 9$$

$$x \leq 9 \div (-2)$$

$$x \geq -4.5$$

$$S.S = X : X \in \mathbb{Q}, \quad x \geq -4.5$$

b)  $3(2x - 1) > 9$

$$6x - 3 > 9$$

$$6x > 9 + 3$$

$$6x > 12$$

$$x > 12 \div 6$$

$$x > 2$$

$$S.S = \{X: X \in Q, x > 2\}$$

4) Find in the simplest form :-

a)  $(-3a^3b^2)(-2ab^4) = 6a^4b^6$

b)  $-3x(x-5) = -3x^2 + 15x$

c)  $-3a^2b(2a b^2 - 2b) = -6a^3 b^3 + 6a^2 b^2$

d)  $(3x+1)(x-3) = 3x^2 - 8x - 3$

e)  $(x-7)(2x-1) = 2x^2 - 15x + 7$

f)  $(x-6)^2 = x^2 - 12x + 36$



g)  $(2x-9)^2 = 4x^2 - 36x + 81$

h)  $-32a^3b^6 \div (-4a^3b^2) = 8b^4$

i)  $(2x - 6x^2 - 8x^3) \div (2x) = 1 - 3x - 4x^2$

j)  $\frac{18x^2y^2}{-2x^2y} = -9y$

k)  $\frac{3xy^2 + 6x^2y - 9x^2y^2}{3xy} = y + 2x - 3xy$

l)  $\frac{x^2}{-x} + \frac{-4x}{x} - \frac{3x^3}{x^2} = -x - 4 - 3x = -4x - 4$

m)  $(X^2+5x+6) \div (x+2) = x + 3$

5) Find in the simplest form  $2a(3a-1)+3a(a+2)$  then find the value of the expression if  $a=2$ .

$$= 6a^2 - 2a + 3a^2 + 6a$$

$$= 9a^2 + 4a$$

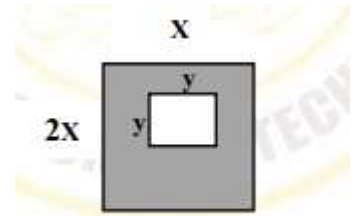
$$\text{If } a = 2$$

$$9 \times 2^2 + 4 \times 2 = 44$$

- 6) Find in the simplest form the expression which represents the shaded part .

$$= x(2x+y)$$

$$= 2x^2+xy$$

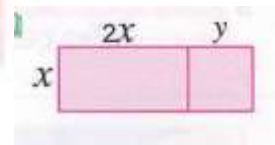


- 7) Find in the simplest form the expression which represents the shaded part .

$$\text{area 1} = 2X \times X = 2X^2$$

$$\text{area 2} = Y \times X = XY$$

$$\text{area of shaded part} = 2X^2 - XY$$



- 8) If:  $(x - 5)(x + 5) = x^2 + bx + c$  , then what is the value of  $b$  ?  
 $b = \text{zero}$

- 9) If  $(2x + 1)$  is a factor of the expression  $(2x^2 - 7x - 4)$ , then find the other factor ?

$$(x-4)$$

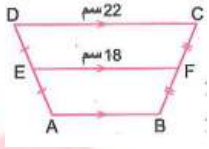
- 10) Divide  $(x^2 - 64)$  by  $(x - 8)$

$$(x+8)$$



## Unit 3

### Q1 / Choose the correct answer:-

- 1) If the area of rhombus is  $100 \text{ cm}^2$  , what is the product of its diagonals ?  
 a) 50                      b) 25                      c) 100                      **d) 200**
- 2) If the area of rhombus is  $20 \text{ cm}^2$  and the length of one of its diagonals is 5cm , what is the length of the other diagonal diagonals ?  
 a) 4cm                      **b) 8cm**                      c) 10cm                      d) 15cm
- 3) Area of square whose side length 4cm ..... area of square whose diagonal is 5cm  
 a) =                      **b) >**                      c) <
- 4) from the opposite figure , what is the length of AB ?  

  
 a) 26cm                      b) 28cm                      c) 20cm                      **d) 14cm**
- 5) Which of the following is the image of the point  $(-1, 3)$  by reflection in the X-axis ?  
**a)  $(-1, -3)$**                       b)  $(1, -3)$                       c)  $(1, 3)$                       d)  $(3, -1)$
- 6) Which of the following is the image of the point  $(a, b)$  by reflection in the X-axis ?  
 a)  $(-a, -b)$                       b)  $(-a, b)$                       **c)  $(a, -b)$**                       d)  $(b, -a)$

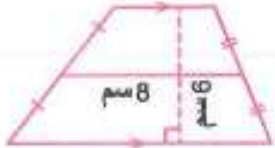
- 7) Which of the following points remains the same when reflected in the Y-axis ?  
a) (2,-3)      b) (3,2)      c) (0,7)      d) (-3,0)
- 8) Which of the following points remains the same when reflected in the X-axis ?  
a) (2,-3)      b) (3,2)      c) (0,7)      d) (-3,0)
- 9) If the image of the point (7,3a-12) is the same when reflected in X-axis , what is the value of a?  
a) 4      b) 12      c) -4      d) 3
- 10) What is the image of the point (2,-3) by reflection in the X-axis followed by reflection in the Y-axis ?  
a) (-2,-3)      b) (2,3)      c) (-2,3)      d) (3,2)
- 11) What is the image of the point (1,7) by translation of 3 units in the positive direction of Y-axis ?  
a) (4,7)      b) (1,10)      c) (1,4)      d) (-2,7)
- 12) What is the image of the point (5,-2) by translation of 5 units in the negative direction of X-axis ?  
a) (10,-2)      b) (5,-7)      c) (5,-3)      d) (0,-2)
- 13) What is the image of the point (2,-1) by translation (x-3 , y+4)?  
a) (-3,4)      b) (-1,3)      c) (-1,5)      d) (5,3)
- 14) What is the image of the point (0,-3) by translation (-1, 2)?  
a) (-1,1)      b) (-1,-1)      c) (1,1)      d) (1,-1)
- 15) What is the image of the point (-1,0) by translation (1,0) followed by translation (2,-3)?  
a) (0,0)      b) (1,0)      c) (-1,0)      d) (2,-3)



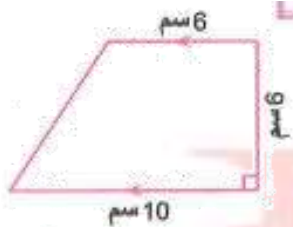
- 16) What is the image of the point  $(-7, 2)$  by rotation  $R(O, 180^\circ)$  ?  
a)  $(7, -2)$       b)  $(-2, 7)$       c)  $(-2, -7)$       d)  $(-7, -2)$
- 17) Identify rotation is the rotation around the origin  $O$  by an angle of measure .....  
a)  $90^\circ$       b)  $180^\circ$       c)  $270^\circ$       d)  $360^\circ$
- 18) What is the image of the point  $(-4, 2)$  when rotated around the origin  $O$  by an angle of measure  $90^\circ$  anti-clockwise ?  
a)  $(-2, 4)$       b)  $(-2, -4)$       c)  $(4, 2)$       d)  $(-4, -2)$
- 19) Which of the following rotations makes the point  $A'$   $(X, -Y)$  the image of  $A$   $(X, -Y)$  ?  
a)  $R(O, 90^\circ)$       b)  $R(O, -90^\circ)$       c)  $R(O, 180^\circ)$       d)  $R(O, 360^\circ)$
- 20) What is the image of the point  $(-4, 5)$  under rotation  $R(O, 90^\circ)$  followed by rotation  $R(O, 180^\circ)$  ?  
a)  $(5, 4)$       b)  $(5, -4)$       c)  $(4, -5)$       d)  $(-5, -4)$

## Q2 / Answer the following :-

- 1) Find the area of the following figures :-



$$8 \times 6 = 48 \text{ cm}^2$$



$$\frac{1}{2} \times (6+10) \times 6 = 48 \text{ cm}^2$$



$$\frac{1}{2} \times 14 \times 10 = 70 \text{ cm}^2$$



$$\frac{1}{2} \times 10^2 = 50 \text{ cm}^2$$

- 2) Find the area of rhombus with diagonal lengths of 6 cm and 10 cm.

$$\text{Area} = \frac{1}{2} \times 6 \times 10 = 30 \text{ cm}^2$$

- 3) Find the height of a rhombus with side length of 15 cm and diagonal lengths of 18 cm and 24 cm.

$$\text{Area} = \frac{1}{2} \times 18 \times 24 = 216 \text{ cm}^2$$

$$\text{Side} = 216 \div 15 = 14.4$$

- 4) A trapezium with a height of 3 cm and a middle base length of 10 cm, find its area.

$$\text{Area} = 3 \times 10 = 30 \text{ cm}^2$$

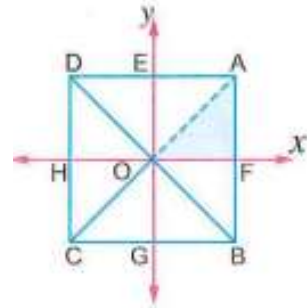
- 5) A trapezium has an area of 63 square meter and the length of its parallel bases are 10 m and 8 m. Calculate its height.

$$\text{Middle base} = \frac{1}{2} \times (8+10) = 9\text{cm}$$

$$\text{Height} = 63 \div 9 = 7\text{cm}$$

- 6) From the opposite figure :-

a) The image of  $\triangle AFO$  by reflection in the Y-axis is .....



- a)  $\triangle AOE$       b)  $\triangle DHO$       c)  $\triangle BFO$       d)  $\triangle OBG$

b) The image of  $\triangle AFO$  by reflection in the X-axis is .....

- a)  $\triangle BFO$       b)  $\triangle AOE$       c)  $\triangle DHO$       d)  $\triangle CHO$

- 7) Draw an angle whose measure is  $45^\circ$  then bisect it.

Draw by yourself.

- 8) Draw an angle whose measure is  $120^\circ$  then bisect it.

Draw by yourself.

- 9) Draw line segment AB whose length = 5cm then bisect it.

Draw by yourself.

- 10) Draw triangle ABC that  $AB=7\text{cm}$  ,  $BC=9\text{cm}$  ,  $AC=4\text{cm}$  , then determine the type of triangle according its angles.

Draw by yourself.



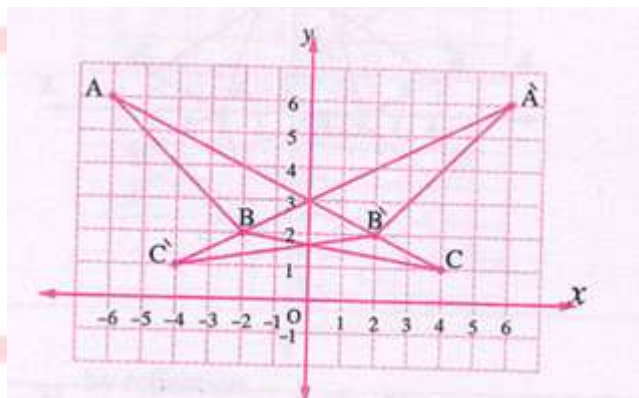
- 11) Draw triangle ABC that  $AB=5\text{cm}$  ,  $m(\angle A)=120^\circ$  ,  $m(\angle B)=30^\circ$  , then determine the type of triangle according its sides.

Draw by yourself.

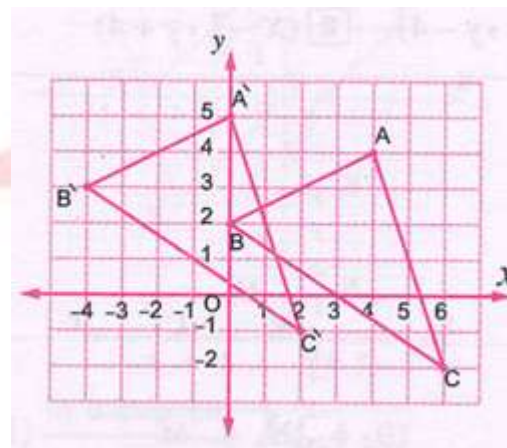
- 12) Draw triangle ABC that  $AB=7\text{cm}$  ,  $BC=5\text{cm}$  ,  $m(\angle ABC)=80^\circ$ .

Draw by yourself.

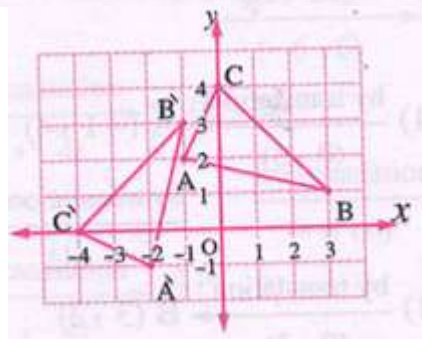
- 13) Draw the triangle ABC that  $A(-6,6)$  ,  $B(-2,2)$  ,  $C(4,1)$  , then draw its image by reflection Y-axis.



- 14) Draw the triangle ABC with vertices:  $A(4,4)$  ,  $B(0,2)$  ,  $C(6,-2)$  , then draw its image by translation  $(X-4 , Y+1)$ .



- 15) Draw the triangle ABC with vertices:  $A(-1,2)$  ,  $B(3,1)$  ,  $C(0,4)$  , then draw its image under rotation  $R(O, 90^\circ)$



**Unit 4****Q1 Choose the correct answer:-**

- 1) Drawing a card from a set of identical numbered cards without knowing the numbers written on the cards :
- a) a random experiment      b) not a random experiment      c) an impossible event      d) a certain event
- 2) Selecting a ball from a basket containing 5 identical balls all are yellow :
- a) a random experiment      b) not a random experiment      c) an impossible event      d) a simple event
- 3) In the experiment of choosing a digit of the number 5742 randomly , what is the sample space ?
- a) {2,4,5,}      b) {2,4,5,7}      c) {5742}      d) {57,74,42}
- 4) In the experiment of rolling a fair die once, which of the following events is a simple event ?
- a) event of getting a number greater than 6      b) event of getting an even prime number
- c) event of getting a number less than or equal to 2      d) event of getting an odd number
- 5) When drawing a card from 10 identical cards numbered from 1 to 10 , which of the following is the event of drawing a number divisible by 2 ?
- a) {2,4,6,8}      b) {2,6}      c) {2,4,6,8,10}      d) {2,4,6}

- 6) In the experiment of rolling a fair die once, and observing the number shown on the upper face, which of the following events is a certain event ?
- a) {2, 4, 6}      b) {1}      c) {1, 3, 5}      d) {1, 2, 3, 4, 5, 6}
- 7) If you are thinking of purchasing one pen from a set of identical pens containing 5 red pens, 2 blue pens, and 3 black pens, and you select this pen randomly what is the probability that the pen is blue?
- a)  $\frac{1}{4}$       b)  $\frac{1}{5}$       c)  $\frac{2}{15}$       d)  $\frac{1}{15}$
- 8) In an experiment of rolling a fair die once, what is the probability of getting a number divisible by 2 ?
- a) zero      b)  $33\frac{1}{3}\%$       c) 50 %      d) 70 %
- 9) If A is an event from a random experiment with equal chances of occurrence, and the probability of event A is 40%, the number of elements of the sample space is 15, what is the number of Elements of event A ?
- a) 2      b) 4      c) 6      d) 10



10) A ball is drawn randomly from a box containing 35 identical balls, of which 7 are white and the remainder are red and black, What is the probability that the drawn ball is not white ?

a)  $\frac{1}{6}$

b)  $\frac{1}{5}$

c)  $\frac{4}{5}$

d)  $\frac{34}{35}$

11) A card carrying a letter from the word "NORHAN" is drawn randomly. What is the probability that this letter is (N)?

a)  $\frac{1}{6}$

b)  $\frac{1}{3}$

c)  $\frac{2}{3}$

d)  $\frac{2}{5}$

12) In an experiment of rolling a fair die once, what is the probability of appearing a number less than 5?

a)  $\frac{1}{6}$

b)  $\frac{1}{3}$

c)  $\frac{2}{3}$

d)  $\frac{1}{2}$

13) Which of the following could be a probability of an event occurring?

a) 1.2

b) -0.4

c)  $\frac{2}{3}$

d) 213%

14) In an experiment of rolling a fair die and observing the upper face, the probability of rolling a number that is not equal to 2 is

a)  $\frac{1}{6}$

b)  $\frac{1}{3}$

c)  $\frac{2}{3}$

d)  $\frac{5}{6}$

- 15) If a fair coin is tossed 400 times, the closest number of times that heads is expected to appear from the following is
- a) 300      b) 90      c) 188      d) 270

## Q2 Complete the following:-

- 1) In the experiment of tossing a fair coin twice in consecutive where the head is H and the tail is T, the sample space for this Experiment is {HH, HT, TH, TT}
- 2) In the experiment of rolling a fair die twice in consecutive and observing the number showing on the upper face, the number of Elements in the sample space is 36
- 3) In the experiment of forming a 2-digit number from the set of numbers {2, 3, 4} the number of elements in the sample space is 9
- 4) If the probability of an event occurring equals the probability of the same event not occurring, then the probability of that event  
$$= \frac{1}{2} = 50\%$$
- 5) The probability of an impossible event = 0
- 6) The probability of a certain event = 1

**Q3 Answer the following:-**

- 1) A card was drawn randomly from a set of identical cards numbered from 5 to 14 , find the probability that the drawn card carries:

$$S = \{5, 6, 7, 8, 9, 10, 11, 12, 13, 14\} \quad n(S) = 10$$

f) An odd number.  $\frac{5}{10} = \frac{1}{2}$

g) An even number greater than 9.  $\frac{5}{10} = \frac{1}{2}$

h) A prime number.  $\frac{4}{10} = \frac{2}{5}$

i) A perfect square number.  $\frac{2}{10} = \frac{1}{5}$

j) A number less than 5. zero

- 2) The opposite figure represents a spinning disc game.



- c) Calculate the probability that the pointer stops at the colour:

(a) Red.  $\frac{1}{8}$

(b) Green.  $\frac{3}{8}$

(c) Yellow.  $\frac{4}{8} = \frac{1}{2}$

- d) Calculate the probability that the pointer does not stop at the colour red.  $\frac{7}{8}$



حمل الآن

مجاناً وحصرياً

# المراجعة رقم (3)

## الترم الثاني





بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## Question (1) Choose the correct answer.

1)  $2 \times 2 \times 2 \times 2 \times 2 = 2^{\dots\dots}$ .

A) 4

B) 5

C) 6

D) 7

2)  $3 \times 3 \times 3 \times 3 = 3^{\dots\dots}$ .

A) 4

B) 5

C) 6

D) 7

3)  $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^{\dots\dots}$ .

A) 2

B) 3

C) 4

D) 6

4)  $4 \times 4 \times 4 \times 4 = 4^{\dots\dots}$ .

A) 4

B) 6

C) 8

D) 9

5)  $(-3)^2 = \dots\dots\dots$

A) -6

B) 6

C) -9

D) 9

6)  $-3^2 = \dots\dots\dots$

A) -6

B) 6

C) -9

D) 9

7)  $\left(\frac{-3}{5}\right)^2 = \dots\dots\dots$

A)  $\frac{9}{25}$ B)  $\frac{-9}{25}$ C)  $\frac{9}{5}$ D)  $\frac{3}{25}$ 

8)  $\left(\frac{-3}{-5}\right)^2 = \dots\dots\dots$

A)  $\frac{9}{25}$ B)  $\frac{-9}{25}$ C)  $\frac{9}{5}$ D)  $\frac{3}{25}$ 

9)  $\left(\frac{-4}{6}\right)^{-2} = \dots\dots\dots$

A)  $\frac{-16}{36}$ B)  $\frac{-36}{16}$ C)  $\frac{36}{16}$ D)  $\frac{16}{36}$

10)  $4^3 + 4^3 + 4^3 + 4^3 = \dots\dots\dots$

A) 4

B)  $4^{12}$

C)  $4^4$

D)  $4^3$

11) Six times the number  $6^2$  is  $\dots\dots\dots$

A)  $6^3$

B)  $6^2$

C)  $36^2$

D) 36

12) One third the number  $3^6$  is  $\dots\dots\dots$

A)  $1^6$

B)  $3^2$

C)  $3^5$

D)  $3^3$

13) One quarter of the number  $4^{12}$  is  $\dots\dots\dots$

A)  $4^3$

B)  $4^{11}$

C)  $1^{12}$

D)  $4^6$

14) One quarter of the number  $2^{16}$  is  $\dots\dots\dots$

A)  $4^7$

B)  $2^7$

C)  $4^{15}$

D)  $2^{15}$

15) One half of the number  $2^{16}$  is  $\dots\dots\dots$

A)  $4^7$

B)  $2^7$

C)  $4^{15}$

D)  $2^{15}$

16) One half of the number  $4^4$  is  $\dots\dots\dots$

A)  $2^4$

B)  $2^7$

C)  $4^{15}$

D)  $2^{15}$

17) Double the number  $2^4$  is  $\dots\dots\dots$

A)  $2^4$

B)  $2^5$

C)  $4^8$

D)  $4^2$

18) Triple the number  $3^3$  is  $\dots\dots\dots$

A)  $3^3$

B)  $3^4$

C)  $3^9$

D)  $9^3$

19)  $6^2 \times 6^5 = \dots\dots\dots$

A)  $6^2$

B)  $6^5$

C)  $6^{10}$

D)  $6^7$

20)  $6^5 \times 2^5 = \dots\dots\dots$

A)  $12^5$

B)  $6^6$

C)  $6^7$

D)  $12^{10}$



21)  $6^5 \times 6^0 = \dots\dots\dots$

A)  $6^2$

B)  $6^5$

C) 0

D)  $6^6$

22)  $6^5 \div 2^5 = \dots\dots\dots$

A)  $3^2$

B)  $6^5$

C)  $3^{10}$

D)  $3^5$

23)  $6^5 \div 6^4 = \dots\dots\dots$

A) 1

B) 6

C)  $6^8$

D)  $6^9$

24)  $(5^3)^3 = \dots\dots\dots$

A)  $5^0$

B)  $5^5$

C)  $5^6$

D)  $5^9$

25)  $(5^3)^0 = \dots\dots\dots$

A)  $5^0$

B)  $5^5$

C)  $5^6$

D)  $5^9$

26)  $4^a + 4^a + 4^a + 4^a = 4\dots\dots\dots$

A) 4

B) a

C) a+1

D) 2a

27)  $4^a + 4^a + 4^a + 4^a = 2\dots\dots\dots$

A) 4

B) a+2

C) a+1

D) 2a+2

28)  $2^a + 2^a + 2^a + 2^a = 2\dots\dots\dots$

A) 4

B) a+2

C) a+3

D) 2a+3

29) The third of the number  $3^5$  is  $\dots\dots\dots$

A)  $3^2$

B)  $3^3$

C)  $3^4$

D)  $3^5$

30) The half of the number  $2^{10}$  is  $\dots\dots\dots$

A)  $2^5$

B)  $2^{11}$

C)  $2^9$

D)  $2^8$

31)  $(2N)^3 = \dots\dots\dots$

A)  $2N^2$

B)  $4N^3$

C)  $8N^3$

D)  $6N^3$

32)  $a^{-1} = \dots\dots\dots$

A)  $a$

B)  $a^2$

C)  $\frac{1}{a}$

D)  $\frac{1}{a^2}$

33)  $2^{-3} = \dots\dots\dots$

A) 8

B)  $4^2$

C)  $\frac{1}{8}$

D)  $\frac{1}{4^2}$

34)  $MN^{-1} = \frac{3}{4}$ , Then  $\frac{N}{M} = \dots\dots\dots$

A)  $\frac{3}{4}$

B)  $\frac{4}{3}$

C)  $\frac{6}{8}$

D)  $\frac{8}{6}$

35)  $5^{-1} + 5^{-1} + 5^{-1} + 5^{-1} + 5^{-1} = \dots\dots\dots$

A)  $5^2$

B)  $5^1$

C)  $5^0$

D)  $5^{-1}$

36)  $\left(\frac{4}{5}\right)^2 \times \left(\frac{5}{4}\right)^{-2} = \dots\dots\dots$

A)  $\frac{25}{4}$

B)  $\frac{25}{16}$

C)  $\frac{4}{25}$

D)  $\frac{16}{25}$

37) 7200000000 =  $7.2 \times 10^{\dots\dots\dots}$

A) 8

B) 11

C) 10

D) 9

38) 7.200000000 =  $7.2 \times 10^{\dots\dots\dots}$

A) 0

B) 1

C) 2

D) 3

39) 0.0000062 =  $6.2 \times 10^{\dots\dots\dots}$

A) -6

B) -7

C) 6

D) 7

40) 6.324000 =  $6.324000 \times 10^{\dots\dots\dots}$

A) 0

B) 1

C) 2

D) 3

41)  $45 \times 900 = \dots\dots\dots$

A)  $4.05 \times 10^2$

B)  $4.05 \times 10^3$

C)  $4.05 \times 10^4$

D)  $4.05 \times 10$

42)  $0.000001002 = 1.002 \times 10^{\dots\dots\dots}$

A) -6

B) 7

C) 4

D) 5

43)  $0.0003000 = 3 \times 10^{\dots\dots\dots}$

A) 3

B) 6

C) 7

D) -4

44)  $0000520 = 5.2 \times 10^{\dots\dots\dots}$

A) 0

B) 1

C) 2

D) 3

45)  $000021.000 = 2.1 \times 10^{\dots\dots\dots}$

A) 0

B) 1

C) 2

D) 3

46)  $1 = 1 \times 10^{\dots\dots\dots}$

A) 0

B) 1

C) 2

D) 3

47)  $5 = 5 \times 10^{\dots\dots\dots}$

A) 0

B) 1

C) 2

D) 3

48)  $10 = 1 \times 10^{\dots\dots\dots}$

A) 0

B) 1

C) 2

D) 3

49)  $\sqrt{36} = \dots\dots\dots$

A) 4

B) 5

C) 6

D) 7

50)  $\sqrt{25} = \dots\dots\dots$

A) 4

B) 5

C) 6

D) 7

51)  $\sqrt{49 - 13} = \dots\dots\dots$

A) 4

B) 5

C) 6

D) 7

52)  $\sqrt{25 + 24} = \dots\dots\dots$

A) 4

B) 5

C) 6

D) 7



53)  $\sqrt{16 + 9} = \dots\dots\dots$

A) 3

B) 4

C) 5

D) 7

54)  $\sqrt{16} + \sqrt{9} = \dots\dots\dots$

A) 3

B) 4

C) 5

D) 7

55)  $\sqrt{25 - 9} = \dots\dots\dots$

A) 3

B) 4

C) 5

D) 7

56)  $\sqrt{25} - \sqrt{9} = \dots\dots\dots$

A) 3

B) 4

C) 5

D) 7

57)  $\sqrt{4} = \dots\dots\dots$

A) 4

B) 2

C) -2

D)  $\pm 2$ 

58)  $\sqrt{49} = \dots\dots\dots$

A) 7

B) 14

C) -7

D)  $\pm 7$ 

59)  $\sqrt{81} = \dots\dots\dots$

A) 3

B) 9

C) -9

D)  $\pm 9$ 

60)  $\sqrt{100} = \dots\dots\dots$

A) 10

B) 50

C) -10

D)  $\pm 10$ 

61)  $\sqrt[3]{8} = \dots\dots\dots$

A) 4

B) 2

C) -2

D)  $\pm 2$ 

62)  $\sqrt[3]{27} = \dots\dots\dots$

A) 9

B) 3

C) -3

D)  $\pm 3$ 

63)  $\sqrt[3]{-64} = \dots\dots\dots$

A) 4

B) 8

C) -4

D)  $\pm 4$

64)  $\sqrt[3]{-125} = \dots\dots\dots$

- A) 5                                  B) 25                                  C) -5                                  D)  $\pm 5$

65)  $X^2 = 4$ , then  $X = \dots\dots\dots$

- A) 4                                  B) 2                                  C) -2                                  D)  $\pm 2$

66)  $\sqrt{16} - \sqrt[3]{-64} = \dots\dots\dots$

- A) 4                                  B) 8                                  C) -4                                  D) 0

67)  $\sqrt{25} + \sqrt[3]{-125} = \dots\dots\dots$

- A) 5                                  B) 10                                  C) -5                                  D) 0

68)  $\sqrt[3]{(-8)^2} = \dots\dots\dots$

- A) 8                                  B) -8                                  C) -4                                  D) 4

69)  $\sqrt{(-2)^2} + \sqrt[3]{(-2)^3} = \dots\dots\dots$

- A) 2                                  B) 4                                  C) -2                                  D) 0

70)  $\sqrt[3]{1000} = \dots\dots\dots$

- A) 0.1                                  B) 10                                  C) 0.01                                  D) 100

71)  $\sqrt[3]{0.001} = \dots\dots\dots$

- A) 0.1                                  B) 10                                  C) 0.01                                  D) 100

72)  $a^3 = 64$ , then  $\sqrt{a} = \dots\dots\dots$

- A) 8                                  B) 4                                  C) 2                                  D) 6

73)  $\sqrt{a^6} = \sqrt[3]{a} \dots\dots\dots$

- A) 9                                  B) 6                                  C) 3                                  D) 1

74) If  $\frac{b}{2} = \frac{2}{b}$ , then  $b = \dots\dots\dots$

- A) 2                                  B) -2                                  C)  $\pm 2$                                   D) 1

75) If  $\frac{b^2}{4} = \frac{2}{b}$ , then b = .....

- A) 2                      B) -2                      C)  $\pm 2$                       D) 4

76)  $\sqrt[3]{\frac{27}{125}} = \dots\dots\dots$

- A)  $\frac{5}{3}$                       B)  $\frac{3}{5}$                       C)  $\frac{-3}{5}$                       D)  $\frac{-5}{3}$

77)  $\sqrt[3]{64} = \dots\dots\dots$

- A)  $\sqrt{16}$                       B)  $\sqrt{64}$                       C)  $\sqrt{4}$                       D)  $2\sqrt{2}$

78)  $\sqrt[3]{-27} = \dots\dots\dots$

- A) 9                      B) -9                      C) -3                      D) 3

79)  $\sqrt[3]{-64} + \sqrt[2]{16} = \dots\dots\dots$

- A) 4                      B) -4                      C) 8                      D) 0

80)  $\sqrt[3]{5} \times \sqrt[3]{5} \times \sqrt[3]{5} = \dots\dots\dots$

- A)  $5\sqrt[3]{5}$                       B)  $\sqrt[3]{15}$                       C)  $5\sqrt[3]{15}$                       D) 5

81) If  $a > b$ , Then  $a + c \dots\dots\dots b + c$

- A) >                      B) <                      C) =

82) If  $a > b$ , Then  $\frac{1}{a} \dots\dots\dots \frac{1}{b}$

- A) >                      B) <                      C) =

83) If  $a < b$ , Then  $a - c \dots\dots\dots b - c$

- A) >                      B) <                      C) =

84) If  $a > b$  and c is a positive number, Then  $ac \dots\dots\dots bc$ .

- A) >                      B) <                      C) =



85) If  $a < b$  and  $c$  is a negative number, Then  $ac$  .....  $bc$ .

A)  $>$

B)  $<$

C)  $=$

86) If  $a < b$  and  $c$  is a positive number, Then  $\frac{a}{c}$  .....  $\frac{b}{c}$ .

A)  $>$

B)  $<$

C)  $=$

87) If  $a > b$  and  $c$  is a negative number, Then  $\frac{a}{c}$  .....  $\frac{b}{c}$ .

A)  $>$

B)  $<$

C)  $=$

88) If  $a = b$ , Then  $a + c$  .....  $b + c$ .

A)  $>$

B)  $<$

C)  $=$

89) If  $-x < 5$ , Then  $x$  .....  $-5$ .

A)  $>$

B)  $<$

C)  $=$

90) If  $m \in \mathbb{N}$ , Then S.S for  $3m < 9$  is .....

A)  $\{3\}$

B)  $\{1,2,3\}$

C)  $\{.....,0,1,2\}$

D)  $\{0,1,2\}$

91) If  $m \in \mathbb{Z}$ , Then S.S for  $3m < 9$  is .....

A)  $\{3\}$

B)  $\{1,2,3\}$

C)  $\{.....,0,1,2\}$

D)  $\{0,1,2\}$

92) The S.S for  $-5n > 0$  is .....

A)  $\mathbb{Q}$

B)  $\mathbb{Q}_+$

C)  $\mathbb{Q}_-$

D)  $\mathbb{Z}$

93) The S.S for  $-5n < 0$  is .....

A)  $\mathbb{Q}$

B)  $\mathbb{Q}_+$

C)  $\mathbb{Q}_-$

D)  $\mathbb{Z}$

94) If  $m$  and  $n$  are two positive integers and  $m^n = 64$ , then the smallest value of  $m + n =$  .....

A) 0

B) 7

C) 8

D) 10

95) If  $m$  and  $n$  are two positive integers and  $m^n = 64$ , then the greatest value of  $m + n = \dots\dots\dots$

- A) 0                      B) 7                      C) 8                      D) 10

97) If  $a - b = 2$  and  $a + b = 4$ , then  $a^2 - b^2 = \dots\dots\dots$

- A) 0                      B) 7                      C) 8                      D) 10

98) ..... is a parallelogram whose sides are equal in length.

- A) Rectangle              B) Trapezoid              C) Rhombus              D) Square

99) ..... is a quadrilateral which has only one pair of parallel sides.

- A) Rectangle              B) Trapezoid              C) Rhombus              D) Square

100) A rhombus with side 6 cm and its height 8 cm, Then its area = .....  $\text{cm}^2$

- A) 14                      B) 24                      C) 28                      D) 48

101) A rhombus with side 5 cm and its height 4 cm, Then its area = .....  $\text{cm}^2$

- A) 10                      B) 15                      C) 18                      D) 20

102) A rhombus with perimeter 28 cm and its height 5 cm, Then its area = .....  $\text{cm}^2$

- A) 12                      B) 18                      C) 24                      D) 35

103) A rhombus with area  $60 \text{ cm}^2$  and its height 12 cm, Then its side length = ..... cm

- A) 5                      B) 6                      C) 12                      D) 72

104) A rhombus with area  $72 \text{ cm}^2$  and its side length 9 cm, Then its height = ..... cm

- A) 8                      B) 9                      C) 16                      D) 72

105) A rhombus with diagonal lengths 9 cm and 6 cm, Then its area = .....  $\text{cm}^2$

- A) 18                      B) 27                      C) 30                      D) 54

106) A rhombus with diagonal lengths 12 cm and 10 cm, Then its area = .....  $\text{cm}^2$

- A) 22                      B) 36                      C) 44                      D) 60

107) A rhombus with diagonal lengths 8 cm and 10 cm, Then its area = .....  $\text{cm}^2$

- A) 18                      B) 36                      C) 40                      D) 80

108) A rhombus with area  $12 \text{ cm}^2$  and its diagonal length is 4, Then it's other diagonal length = ..... cm

- A) 4                      B) 6                      C) 8                      D) 9

109) A rhombus with area  $64 \text{ cm}^2$  and its diagonal length is 16, Then it's other diagonal length = ..... cm

- A) 4                      B) 6                      C) 8                      D) 9

110) A trapezoid with parallel sides lengths 12 cm and 8 cm and its height is 6 cm, Then its area = .....  $\text{cm}^2$

- A) 26                      B) 48                      C) 60                      D) 120

111) A trapezoid with parallel sides lengths 6 cm and 8 cm and its height is 7 cm, Then its area = .....  $\text{cm}^2$

- A) 21                      B) 49                      C) 90                      D) 104

112) A trapezoid with parallel sides lengths 5 cm and 7 cm and its height is 9 cm, Then its area = .....  $\text{cm}^2$

- A) 21                      B) 54                      C) 90                      D) 98



113) A trapezoid with area 64 and its parallel sides lengths are 10 cm and 6 cm, Then its height = ..... cm

- A) 8                      B) 10                      C) 12                      D) 16

114) A trapezoid with area 84 and its parallel sides lengths are 10 cm and 14 cm, Then its height = ..... cm

- A) 7                      B) 9                      C) 11                      D) 12

115) A trapezoid with area 84 and its parallel sides lengths are 10 cm and 14 cm, Then its height = ..... cm

- A) 7                      B) 9                      C) 11                      D) 12

116) A trapezoid with area 48 and one of its parallel sides length is 10 cm and its height is 4 cm, Then its other parallel side = ..... cm

- A) 8                      B) 10                      C) 12                      D) 14

117) A trapezoid with middle base length 6 cm and its height is 7 cm, Then its area = .....  $\text{cm}^2$

- A) 13                      B) 21                      C) 26                      D) 42

118) A trapezoid with area  $60 \text{ cm}^2$  and its middle base is 12 cm, Then its height = ..... cm

- A) 5                      B) 10                      C) 12                      D) 17

119) A trapezoid with area  $54 \text{ cm}^2$  and its height is 6 cm, then its middle Base = ..... cm

- A) 7                      B) 8                      C) 9                      D) 10

120) The image of the point (5 , 3) by reflection in the origin point followed by reflection on X axis is .....

- A) (5 , -3)                      B) (-5 , -3)                      C) (5 , 3)                      D) (-5 , 3)

121) The image of the point  $(-4, 7)$  by reflection in the origin point followed by reflection on Y axis is .....

- A)  $(4, -7)$                       B)  $(-4, -7)$                       C)  $(4, 7)$                       D)  $(-4, 7)$

122) The point whose image by reflection in the origin point is itself is .....

- A)  $(0, 1)$                       B)  $(1, 0)$                       C)  $(0, 0)$                       D)  $(1, 1)$

123) The image of the point  $(3, 5)$  by translation of a magnitude of 3 units in the positive direction of the X axis is .....

- A)  $(3, 8)$                       B)  $(0, 5)$                       C)  $(3, 5)$                       D)  $(6, 5)$

124) The image of the point  $(5, 1)$  by translation of a magnitude of -2 units in the positive direction of the X axis is .....

- A)  $(3, 1)$                       B)  $(7, 1)$                       C)  $(5, -1)$                       D)  $(5, 1)$

125) The image of the point  $(1, 1)$  by translation of a magnitude of 4 units in the negative direction of the X axis is .....

- A)  $(3, 1)$                       B)  $(-3, 1)$                       C)  $(5, -1)$                       D)  $(5, 1)$

126) The image of the point  $(2, 3)$  by translation of a magnitude of -1 units in the negative direction of the X axis is .....

- A)  $(3, 3)$                       B)  $(7, 1)$                       C)  $(5, -1)$                       D)  $(5, 1)$

127) The image of the point  $(3, 5)$  by translation of a magnitude of 3 units in the positive direction of the Y axis is .....

- A)  $(3, 8)$                       B)  $(0, 5)$                       C)  $(3, 5)$                       D)  $(6, 5)$

128) The image of the point  $(5, 1)$  by translation of a magnitude of -2 units in the positive direction of the Y axis is .....

- A)  $(3, 1)$                       B)  $(7, 1)$                       C)  $(5, -1)$                       D)  $(5, 1)$

129) The image of the point (1 , 1) by translation of a magnitude of 4 units in the negative direction of the Y axis is .....

- A) (3 , 1)                      B) (-3 , 1)                      C) (5 , -1)                      D) (1 , -3)

130) The image of the point (2 , 3) by translation of a magnitude of -1 units in the negative direction of the Y axis is .....

- A) (3 , 3)                      B) (2 , 4)                      C) (5 , -1)                      D) (5 , 1)

131) The image of the point (1 , 1) by translation of a magnitude of 2 units in the positive direction of the X axis is and 3 in the positive direction of Y axis is .....

- A) (3 , 1)                      B) (-1 , 4)                      C) (3 , 4)                      D) (3 , -3)

132) The image of the point (3 , 4) by translation of a magnitude of -2 units in the positive direction of the X axis is and -1 in the negative direction of Y axis is .....

- A) (1 , 3)                      B) (5 , 3)                      C) (1 , 5)                      D) (5 , 5)

133) The image of the point (7 , 5) by translation of a magnitude of -2 units in the negative direction of the X axis is and -3 in the positive direction of Y axis is .....

- A) (9 , 2)                      B) (5 , 2)                      C) (5 , 8)                      D) (9 , 8)

134) The image of the point (3 , 4) by translation of a magnitude of -3 units in the negative direction of the X axis is and 1 in the negative direction of Y axis is .....

- A) (3 , 3)                      B) (6 , 5)                      C) (6 , 3)                      D) (3 , 5)

135) The image of the point (x , y) by rotation  $R(0 , 90^\circ)$  is .....

- A) (x , y)                      B) (y , x)                      C) (-y , x)                      D) (-x , y)

136) The image of the point (1 , 5) by rotation  $R(0 , 90^\circ)$  is .....

- A) (1 , 5)                      B) (-5 , 1)                      C) (5 , 1)                      D) (-1 , 5)



137) The image of the point  $(x, y)$  by rotation  $R(0, 270^\circ)$  is .....

- A)  $(y, -x)$                       B)  $(y, x)$                       C)  $(-y, x)$                       D)  $(-x, y)$

138) The image of the point  $(-2, 3)$  by rotation  $R(0, 270^\circ)$  is .....

- A)  $(-2, -3)$                       B)  $(-3, 2)$                       C)  $(-3, -2)$                       D)  $(3, 2)$

139) The image of the point  $(x, y)$  by rotation  $R(0, -90^\circ)$  is .....

- A)  $(x, y)$                       B)  $(y, -x)$                       C)  $(-y, x)$                       D)  $(-x, y)$

140) The image of the point  $(3, 3)$  by rotation  $R(0, -90^\circ)$  is .....

- A)  $(-3, 3)$                       B)  $(3, -3)$                       C)  $(3, 3)$                       D)  $(-3, -3)$

141) Rotation around point with an angle  $270^\circ$  is equivalent to rotation around point with an angle ..... $^\circ$

- A)  $-90$                       B)  $180$                       C)  $270$                       D)  $360$

142) The image of the point  $(x, y)$  by rotation  $R(0, 180^\circ)$  is .....

- A)  $(-x, -y)$                       B)  $(y, x)$                       C)  $(-y, x)$                       D)  $(-x, y)$

143) The image of the point  $(1, 5)$  by rotation  $R(0, 180^\circ)$  is .....

- A)  $(1, -5)$                       B)  $(-1, 5)$                       C)  $(-1, -5)$                       D)  $(1, 5)$

144) The image of the point  $(x, y)$  by rotation  $R(0, -180^\circ)$  is .....

- A)  $(-x, -y)$                       B)  $(y, x)$                       C)  $(-y, x)$                       D)  $(-x, y)$

145) The image of the point  $(2, 1)$  by rotation  $R(0, -180^\circ)$  is .....

- A)  $(2, -1)$                       B)  $(-2, -1)$                       C)  $(-2, 1)$                       D)  $(2, 1)$

146) The image of the point  $(x, y)$  by rotation  $R(0, \pm 360^\circ)$  is .....

- A)  $(x, y)$                       B)  $(y, x)$                       C)  $(-y, x)$                       D)  $(-x, y)$

147) The image of the point  $(1, 5)$  by rotation  $R(0, \pm 360^\circ)$  is .....

- A)  $(-1, 5)$                       B)  $(1, -5)$                       C)  $(-1, -5)$                       D)  $(1, 5)$

148) Rotation with an angle  $90^\circ$  is called ..... Turn.

- A)  $\frac{1}{4}$                       B)  $\frac{1}{3}$                       C)  $\frac{1}{2}$                       D) 1

149) Rotation with an angle  $180^\circ$  is called ..... Turn.

- A)  $\frac{1}{4}$                       B)  $\frac{1}{3}$                       C)  $\frac{1}{2}$                       D) 1

150) Rolling a fair die once and observing the number appearing in the upper face is .....

- A) random experiment                      B) not a random experiment

151) Drawing a ball from a bag contains identical 10 balls .....

- A) random experiment                      B) not a random experiment

152) Drawing a ball from a bag contains identical 10 blue balls .....

- A) random experiment                      B) not a random experiment

153) Drawing a ball from a bag contains identical 3 blue balls, 5 red balls .....

- A) random experiment                      B) not a random experiment

154) Tossing a coin once and observe the face that appears .....

- A) random experiment                      B) not a random experiment

155) Drawing a card from a set of identical cards .....

- A) random experiment                      B) not a random experiment

156) Drawing a card from a set of identical cards numbered from 1 to 10 .....

- A) random experiment                      B) not a random experiment

156) Drawing a card from a set of identical cards with the same number .....

- A) random experiment                      B) not a random experiment

**Question (2) Complete the Following.**

1)  $5 \times 5 \times 5 \times 5 \times 5 = 5^{\dots\dots\dots}$ .

2)  $7 \times 7 \times 7 \times 7 = 7^{\dots\dots\dots}$ .

3)  $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 = 9^{\dots\dots\dots}$ .

4)  $9 \times 9 \times 9 = 3^{\dots\dots\dots}$ .

5)  $(-8)^2 = \dots\dots\dots$

6)  $-6^2 = \dots\dots\dots$

7)  $\left(\frac{-7}{12}\right)^2 = \dots\dots\dots$

8)  $\left(\frac{-8}{-9}\right)^2 = \dots\dots\dots$

9)  $\left(\frac{-5}{10}\right)^{-2} = \dots\dots\dots$

10)  $5^a + 5^a + 5^a + 5^a + 5^a = \dots\dots\dots$

11) Nine times the number  $3^2$  is  $\dots\dots\dots$

12) One sixths the number  $6^6$  is  $\dots\dots\dots$

13) One fifth of the number  $5^7$  is  $\dots\dots\dots$

14) One seventh of the number  $7^5$  is  $\dots\dots\dots$

15) One half of the number  $2^8$  is  $\dots\dots\dots$

16) One half of the number  $4^6$  is  $\dots\dots\dots$

17) Twice the number  $2^2$  is  $\dots\dots\dots$

18) Triple the number  $3^5$  is  $\dots\dots\dots$

19)  $2^a = 5$ , Then  $2^{a+1} = \dots\dots\dots$

20)  $5^{-3} \times a^0 = \dots\dots\dots$

21)  $(b^{-2})^4 = b^{\dots\dots\dots}$



22)  $2845000 = \dots \times 10^{\dots}$

23)  $0.000012 = \dots \times 10^{\dots}$

24)  $012450000 = \dots \times 10^{\dots}$

25)  $0.00025000 = \dots \times 10^{\dots}$

26)  $1 = \dots \times 10^{\dots}$

27)  $0 = \dots \times 10^{\dots}$

28)  $0.000000 = \dots \times 10^{\dots}$

29)  $100.001 = \dots \times 10^{\dots}$

30)  $1.00000 = \dots \times 10^{\dots}$

31)  $00001.0000 = \dots \times 10^{\dots}$

32)  $3 \times 10^5 \dots 3 \times 10^{-5}$

33)  $0.001 \times 10^5 \dots 0001 \times 10^7$

34)  $0.002 \times 10^5 \dots 2000 \times 10^{-1}$

35)  $0 \times 10^5 \dots 0 \times 10^{10}$

36)  $10^{20} - 10^{19} = \dots$

37)  $4^5 + 4^5 + 4^5 + 4^5 = 4^{\dots}$

38)  $\frac{8}{2} + \frac{8}{2} + \frac{8}{2} + \frac{8}{2} = 4^{\dots}$

39)  $2^{4x} \times 4^{2x} = 4^{\dots}$

40) The additive inverse of  $(\frac{2}{3})^5$  is  $\dots$

41) The multiplicative inverse of  $(\frac{2}{3})^5$  is  $\dots$

42)  $2^a = 5$ , Then  $2^{a+1} = \dots$

43)  $5^{-3} \times a^0 = \dots$

44)  $\sqrt{81} = \dots\dots\dots$

45)  $\sqrt{100} = \dots\dots\dots$

46)  $\sqrt{25 + 39} = \dots\dots\dots$

47)  $\sqrt{45 - 11} = \dots\dots\dots$

48)  $\sqrt{36} + \sqrt{64} = \dots\dots\dots$

49)  $\sqrt{36 + 64} = \dots\dots\dots$

50)  $\sqrt{25 + \sqrt{121}} = \dots\dots\dots$

51)  $\sqrt{5 - \sqrt{1}} = \dots\dots\dots$

52)  $\sqrt{5 + \sqrt{16}} = \dots\dots\dots$

53)  $\sqrt{1} + \sqrt{4} + \sqrt{9} + \sqrt{16} + \sqrt{25} + \sqrt{36} + \sqrt{64} = \dots\dots\dots$

54)  $\sqrt{16} = \dots\dots\dots$

55)  $\sqrt{36} = \dots\dots\dots$

56)  $\sqrt{169} = \dots\dots\dots$

57)  $\sqrt{400} = \dots\dots\dots$

58)  $\sqrt[3]{64} = \dots\dots\dots$

59)  $\sqrt[3]{343} = \dots\dots\dots$

60)  $\sqrt[3]{-512} = \dots\dots\dots$

61)  $\sqrt[3]{-216} = \dots\dots\dots$

62)  $X^2 = 9$ , then  $X = \dots\dots\dots$

63)  $\sqrt{25} - \sqrt[3]{-125} = \dots\dots\dots$

64)  $\sqrt{36} + \sqrt[3]{-216} = \dots\dots\dots$

65)  $\sqrt[3]{(-6)^2} = \dots\dots\dots$

66)  $\sqrt{(-4)^2} + \sqrt[3]{(-4)^3} = \dots\dots\dots$

67)  $\sqrt[3]{1000} = \dots\dots\dots$

68)  $\sqrt[3]{0.001} = \dots\dots\dots$

69)  $a^3 = 729$ , then  $\sqrt{a} = \dots\dots\dots$

70)  $\sqrt{a^8} = \sqrt[3]{a^{\dots\dots\dots}}$

71) If  $\frac{b}{3} = \frac{3}{b}$ , then  $b = \dots\dots\dots$

72) If  $\frac{b^2}{9} = \frac{3}{b}$ , then  $b = \dots\dots\dots$

73)  $\sqrt[3]{\frac{64}{512}} = \dots\dots\dots$

74)  $\sqrt[3]{125} = \dots\dots\dots$

75)  $\sqrt[3]{-216} = \dots\dots\dots$

76)  $\sqrt[3]{-8} + \sqrt[2]{4} = \dots\dots\dots$

77)  $\sqrt[3]{7} \times \sqrt[3]{7} \times \sqrt[3]{7} = \dots\dots\dots$

78) If  $X > Y$ , Then  $-X \dots\dots\dots Y$ .

79) If  $X > Y$ , Then  $-X \dots\dots\dots -Y$ .

80) If  $X > Y$  and  $L > M$ , Then  $X + L \dots\dots\dots Y + M$ .

81) If  $X > Y$  and  $-L > M$ , Then  $X + L \dots\dots\dots Y + M$ .

82) If  $X > Y$  and  $L > M$ , Then  $X + L \dots\dots\dots Y + M$ .

83) If  $X > Y$  and  $Z > 0$ , Then  $XZ \dots\dots\dots YZ$ .

84) If  $X > Y$  and  $Z < 0$ , Then  $XZ \dots\dots\dots YZ$ .



85) If  $X > Y$  and  $Z > 0$ , Then  $\frac{x}{z}$  .....  $\frac{y}{z}$ .

86) If  $X > Y$  and  $Z > 0$ , Then  $\frac{z}{x}$  .....  $\frac{z}{y}$ .

87) If  $X > Y$  and  $Z < 0$ , Then  $\frac{x}{z}$  .....  $\frac{y}{z}$ .

88) If  $X > Y$  and  $Z < 0$ , Then  $\frac{z}{x}$  .....  $\frac{z}{y}$ .

89) If  $X - 5 > 0$ , Then  $X$  ..... 5.

90) If  $X - 5 < 0$ , Then  $X$  ..... 5.

91)  $(a + 3)(a - b) =$  .....

92)  $(a - 2)(a + 3) = a^2 +$  .....  $- 6$ .

93)  $(2a + 5b)(4a - 3b) = 8a^2 -$  .....  $+$  .....

94) Area of rhombus = ..... or .....

95) Perimeter of rhombus = .....

96) Area of square = ..... or .....

97) Perimeter of square = .....

98) Area of trapezoid = ..... or .....

99) A rhombus with side 3 cm and its height 5 cm, Then its area = .....  $\text{cm}^2$

100) A rhombus with side 9 cm and its height 7 cm, Then its area = .....  $\text{cm}^2$

101) A rhombus with perimeter 32 cm and its height 5 cm, Then its area = .....  $\text{cm}^2$

102) A rhombus with area  $50 \text{ cm}^2$  and its height 5 cm, Then its side length = ..... cm

103) A rhombus with area  $49 \text{ cm}^2$  and its side length 7 cm, Then its height = ..... cm

- 104) A square with side length 9 cm, Then its area = .....  $\text{cm}^2$
- 105) A square with area  $36 \text{ cm}^2$ , Then its side length = ..... cm
- 106) A rhombus with diagonal lengths 7 cm and 8 cm, Then its area = .....  $\text{cm}^2$
- 107) A rhombus with diagonal lengths 5 cm and 6 cm, Then its area = .....  $\text{cm}^2$
- 108) A rhombus with diagonal lengths 8 cm and 10 cm, Then its area = .....  $\text{cm}^2$
- 109) A rhombus with area  $18 \text{ cm}^2$  and its diagonal length is 4, Then its other diagonal length = ..... cm
- 110) A rhombus with area  $32 \text{ cm}^2$  and its diagonal length is 16, Then its other diagonal length = ..... cm
- 111) A square with diagonal length 6 cm, Then its area = .....  $\text{cm}^2$
- 112) A square with area  $32 \text{ cm}^2$ , Then its diagonal length = ..... cm
- 113) A trapezoid with bases lengths 7 cm and 9 cm and its height is 6 cm, Then its area = .....  $\text{cm}^2$
- 114) A trapezoid with bases lengths 6 cm and 5 cm and its height is 7 cm, Then its area = .....  $\text{cm}^2$
- 115) A trapezoid with bases lengths 8 cm and 7 cm and its height is 9 cm, Then its area = .....  $\text{cm}^2$
- 116) A trapezoid with area 72 and its bases lengths 10 cm and 6 cm, Then its height = ..... cm
- 117) A trapezoid with area 54 and one of its bases length is 10 cm and its height is 6 cm, Then its other parallel sides = ..... cm

- 118) A trapezoid with middle base length 8 cm and its height is 7 cm, Then its area = ..... cm<sup>2</sup>
- 119) A trapezoid with area 80 cm<sup>2</sup> and its middle base is 10 cm, Then its height = ..... cm
- 120) A trapezoid with area 96 cm<sup>2</sup> and its height is 8 cm, Then its middle Base = ..... cm
- 121) The image of the point (7 , 5) by reflection on X axis is .....
- 122) The image of the point (6 , 0) by reflection on X axis is .....
- 123) The image of the point (3 , 4) by reflection on Y axis is .....
- 124) The image of the point (7 , 0) by reflection on Y axis is .....
- 125) The image of the point (0 , 0) by reflection on X axis is .....
- 126) The image of the point (0 , 0) by reflection on Y axis is .....
- 127) The image of the point (2 , 3) by reflection on X axis and Y axis is .....
- 128) The image of the point (-2 , 3) by reflection in the origin point followed by reflection on X axis is .....
- 129) The image of the point (-1 , 0) by reflection in the origin point followed by reflection on Y axis is .....
- 130) The point whose image by reflection in the origin point is itself is .....
- 131) The image of the point (2 , 8) by translation of a magnitude of 1 units in the positive direction of the X axis is .....
- 132) The image of the point (3 , 6) by translation of a magnitude of -3 units in the positive direction of the X axis is .....
- 133) The image of the point (4 , 4) by translation of a magnitude of 4 units in the negative direction of the X axis is .....



- 134) The image of the point (5 , 2) by translation of a magnitude of -3 units in the negative direction of the X axis is .....
- 135) The image of the point (8 , 5) by translation of a magnitude of 3 units in the positive direction of the Y axis is .....
- 136) The image of the point (6 , 1) by translation of a magnitude of -2 units in the positive direction of the Y axis is .....
- 137) The image of the point (1 , 1) by translation of a magnitude of -1 units in the negative direction of the Y axis is .....
- 138) The image of the point (5 , 5) by translation of a magnitude of -1 units in the negative direction of the Y axis is .....
- 139) The image of the point (10 , 10) by translation of a magnitude of -5 units in the positive direction of the X axis is and -10 in the positive direction of Y axis is .....
- 140) The image of the point (7 , 4) by translation of a magnitude of -2 units in the positive direction of the X axis is and -1 in the negative direction of Y axis is .....
- 141) The image of the point (0 , 5) by translation of a magnitude of -2 units in the negative direction of the X axis is and -3 in the positive direction of Y axis is .....
- 142) The image of the point (3 , 0) by translation of a magnitude of -3 units in the negative direction of the X axis is and 1 in the negative direction of Y axis is .....
- 143) The image of point (6 , 4) by translation  $(x , y) \longrightarrow (x+2 , y+1)$  is .....
- 144) The image of point (0 , -1) by translation  $(x , y) \longrightarrow (x-3 , y+2)$  is .....
- 145) The image of point (1 , 0) by translation  $(x , y) \longrightarrow (x+0 , y-0)$  is .....
- 146) The image of the point (x , y) by rotation  $R(0 , 90^\circ)$  is .....

- 147) The image of the point (1 , 5) by rotation  $R(0, 90^\circ)$  is .....
- 148) The image of the point (-2 , 1) by rotation  $R(0, 90^\circ)$  is .....
- 149) The image of the point (x , y) by rotation  $R(0, 270^\circ)$  is .....
- 150) The image of the point (-2 , 3) by rotation  $R(0, 270^\circ)$  is .....
- 151) The image of the point (0 , -5) by rotation  $R(0, 270^\circ)$  is .....
- 152) The image of the point (x , y) by rotation  $R(0, -90^\circ)$  is .....
- 153) The image of the point (3 , 3) by rotation  $R(0, -90^\circ)$  is .....
- 154) The image of the point (0 , 0) by rotation  $R(0, -90^\circ)$  is .....
- 155) Rotation around point with an angle  $270^\circ$  is equivalent to rotation around point with an angle ..... $^\circ$
- 156) The image of the point (x , y) by rotation  $R(0, 180^\circ)$  is .....
- 157) The image of the point (1 , 5) by rotation  $R(0, 180^\circ)$  is .....
- 158) The image of the point (-2 , 1) by rotation  $R(0, 180^\circ)$  is .....
- 159) The image of the point (x , y) by rotation  $R(0, -180^\circ)$  is .....
- 160) The image of the point (2 , 1) by rotation  $R(0, -180^\circ)$  is .....
- 161) The image of the point (-6 , 7) by rotation  $R(0, -180^\circ)$  is .....
- 162) The image of the point (x , y) by rotation  $R(0, \pm 360^\circ)$  is .....
- 163) The image of the point (1 , 5) by rotation  $R(0, \pm 360^\circ)$  is .....
- 164) The image of the point (-2 , 1) by rotation  $R(0, \pm 360^\circ)$  is .....
- 165) Rotation with an angle  $90^\circ$  is called ..... Turn.
- 166) Rotation with an angle  $90^\circ$  is called ..... Turn.
- 167) Rotation with an angle  $90^\circ$  is called .....
- 168) The sample space of rolling a fair die once .....

- 169) The sample space of tossing a fair coin once .....
- 170) The sample space of drawing a card from set of identical cards numbered from .....
- 171) The sample space of tossing a fair coin twice .....
- 172) The number of elements in the sample space of rolling a fair die once is....
- 173) The number of elements in the sample space of rolling a fair die twice is....
- 174) The number of elements in the sample space of tossing a fair coin once is...
- 175) The number of elements in the sample space of tossing a fair coin twice is..
- 176) The sample space of forming a 2 digit number from the set of number {1 , 5 , 7} is .....
- 177) The event of the prime numbers when tossing a fair die once is .....
- 178) The event of the even numbers when tossing a fair die once is .....
- 179) The event of the even prime numbers when tossing a fair die once is .....
- 180) The event of the odd numbers when tossing a fair die once is .....
- 181) The event of the odd prime numbers when tossing a fair die once is .....
- 182) ..... is a small part from a large society that looks like this society and represent it well and selected randomly.
- 183) ..... is a sample whose are selected by a certain system or a method in selection.
- 184) Experimental probability =  $\frac{\text{.....}}{\text{.....}}$
- 185) ..... is the set of all possible outcomes of a random experiment.
- 186) ..... is a subset of a sample space.
- 187)  $P(A) = \frac{\text{.....}}{\text{.....}}$



- 188) The probability of the impossible event is .....
- 189) The probability of the certain event is .....
- 190) The probability of any event is between .....
- 191) The sum of all probabilities of all outcomes in a random experiment = .....
- 192) The probability of occurrence on an event is  $x$ , Then the probability of that doesn't occur = .....
- 193) After throwing a fair die the probability of appearance number greater than 0 is .....
- 194) After throwing a fair die the probability of appearance number greater than 5 is .....
- 195) After throwing a fair die the probability of appearance number greater than 3 is .....
- 196) If a coin is flipped once, Then the probability of appearance a tail is .....
- 197) After throwing a fair die the probability of appearance number smaller than 0 is .....
- 198) After throwing a fair die the probability of appearance number smaller than 6 is .....
- 199) If a coin is flipped two times, Then the probability of appearance a head is .....
- 200) After throwing a fair die the probability of appearance number greater than or equal 5 is .....
- 201) After throwing a fair die the probability of appearance number smaller than or equal 6 is .....

202) After throwing a fair die the probability of appearance an even number is .....

203) After throwing a fair die the probability of appearance an odd number is .....

204) After throwing a fair die the probability of appearance an even number greater than 3 is .....

205) After throwing a fair die the probability of appearance an odd number less than 2 is .....

206) After throwing a fair die the probability of appearance a prime number is .....

207) After throwing a fair die the probability of appearance an prime number greater than 3 is .....

208) After throwing a fair die the probability of appearance a number is divisible by 3 is .....

209) After throwing a fair die the probability of appearance a number is divisible by 6 is .....

210) .....  $\leq$  The probability  $\leq$  .....

### Question (3) Essay problems.

1) Write each of the following in exponential form such that the base is a prime number.

A) 64.

.....

B) 81.

.....

C) 100.

.....

D) 125.

.....

E) 144.

.....

2) Find the value of each of the following in the simplest form.

A)  $\frac{5^8 \times 5^7}{5^6 \times 5^8}$ .

.....

.....

B)  $\frac{4^{-3} \times 4^7}{4^6 \times 4^{-1}}$ .

.....

.....

C)  $\frac{(-2)^6 \times (2)^4}{(2)^8 \times (-2)^{-1}}$ .

.....

.....

D)  $\frac{(-3)^4 \times (-3)^3 \times 3^3}{(-3)^6 \times (-3)^5}$ .

.....

.....

E)  $\frac{(-7)^{10} \times (7)^4}{(7)^8 \times (-7)^6}$ .

.....

.....



F)  $\frac{a^3 \times a^{-3}}{a^5 \times a^8}$ .

.....

.....

G)  $\frac{3^4 \times 4^7 \times 5^8}{3^3 \times 4^{-1} \times 5^6}$ .

.....

.....

H)  $\frac{a^7 \times b^5 \times c^{-5}}{b^{-1} \times c^{-6} \times a^6}$ .

.....

.....

3) If  $a = -2$ ,  $b = 3$  and  $c = 4$ , find the numerical value for each of the following.

A)  $5a^2$ .

.....

B)  $(a^2 - b^2)^2$ .

.....

C)  $8c^a$ .

.....

D)  $(8c)^a$ .

.....

E)  $(a^3 + c)^2$ .

.....

F)  $(a + c)^2$ .

.....

4) If  $a = \frac{2}{3}$  and  $b = \frac{-4}{3}$ , find the numerical value of  $|b^3 \div a^3|$ .

.....

5) If  $X = \frac{-3}{2}$ ,  $Y = \frac{1}{2}$  and  $z = \frac{-4}{3}$ , Find the numerical value of each of the following in the simplest form.

A)  $X^2 Y^2 Z^2$

.....

B)  $X^2 \div Z^2$

.....

C)  $X^2 - YZ^2$

.....

6) Find the volume of the cube whose side length is  $\frac{a}{3b}$  cm.

.....

.....

7) Find the area of the square whose length is  $4x$  cm.

.....

.....

8) If five times a number is  $5^4$ , Then find  $\frac{4}{5}$  of this number.

.....

.....

9) If  $X = \frac{1}{9}$ ,  $Y = \frac{9}{3}$  and  $Z = \frac{3}{2}$ , Then find  $X^5 Y^5 Z^5$ .

.....

.....

.....

10) Simplify each of the following.

A)  $\frac{a^3 \times b^{-5} \times c^2}{a^{-2} \times b^3 \times c^2}$

.....

.....

.....

B)  $\frac{m^4 \times n^{-2} \times l^5}{l^{-2} \times m^3 \times n^2}$

.....

.....

.....

C)  $\frac{x^3 \times y^{-5} \times z^2}{z^{-4} \times y^3 \times x^6}$

.....

.....

.....

D)  $\frac{a^6 \times b^4 \times c^{-5}}{a^6 \times b^{-4} \times c^5}$

.....

.....

.....

11) Calculate the value of  $(\frac{2}{3})^a \times (\frac{3}{2})^b$  in each of the following cases.

A) a=1 and b=-1

.....

.....

B) a=3 and b=-2

.....

.....



C)  $a=-2$  and  $b=2$

.....

.....

D)  $a=3$  and  $b=3$

.....

.....

12) If  $3^x = 5$ , Then find each of the following.

A)  $3^{x+1}$

.....

.....

B)  $3^{x+2}$

.....

.....

13) Write the result of each of the following in the standard form.

A)  $47 \times 10^6$

.....

B)  $47 \times 10^{-6}$

.....

C)  $0.0025 \times 10^{-6}$

.....

D)  $(6.012 \times 10^3) \times (1.1 \times 10^4)$

.....

.....

E)  $(5.2 \times 10^5) \times (5 \times 10^4)$

F)  $(1.25 \times 10^8) \div (0.5 \times 10^{-3})$

G)  $(1.5 \times 10^{-7}) \div (0.5 \times 10^{-5})$

H)  $(3.6 \times 10^3) + (4.8 \times 10^4)$

I)  $(9.8 \times 10^{-5}) + (4.9 \times 10^{-6})$

J)  $(5.6 \times 10^3) - (0.008 \times 10^4)$

K)  $(1.4 \times 10^{18}) - (1.04 \times 10^{19})$

L) 
$$\frac{9.2 \times 10^3 + 4.98 \times 10^4}{2.5 \times 10^{-5}}$$

M)  $\frac{6.35 \times 10^6 - 23.5 \times 10^5}{2.5 \times 10^6}$

.....

.....

14) If  $a=2$  and  $b=5$ , Then find the result of each of the following.

A)  $(a + b)^2$

.....

.....

B)  $(a - b)^2$

.....

.....

C)  $(b - a)^3$

.....

.....

D)  $\left(\frac{b}{a}\right)^2$

.....

.....

E)  $\left(\frac{a-b}{a^3}\right)^2$

.....

.....

15) Put the suitable sign from ( < - = - > ).

A)  $4.6 \times 10^5$  .....  $3.1 \times 10^6$

B)  $7.04 \times 10^{-5}$  .....  $8 \times 10^{-6}$

C)  $32 \times 10^8$  .....  $0.31 \times 10^{11}$

D)  $0.3 \times 10^{-3}$  .....  $1 \times 10^{-2}$

E) 96230 .....  $0.692 \times 10^6$

F) 0.000452 .....  $4.42 \times 10^{-4}$

16) Simplify each of the following.

A)  $\sqrt{3^2 + 2^2}$

.....

B)  $\sqrt{\left(\frac{1}{2}\right)^2 - \frac{1}{4} + 1}$

.....

C)  $\sqrt{(\sqrt{16} + \sqrt{25})^2}$

.....

17) A cube of volume  $125 \text{ cm}^3$ , find its total area.

.....

.....

18) Find the inner edge length of a cube vessel with capacity of 1 liter.

.....

.....

19) Find the solution set of each of the following equations.

A)  $\sqrt{x} = 3$ .

.....

.....

B)  $\sqrt[3]{x} = 3$ .

.....

.....

C)  $x^2 - 3 = 118$ .

.....

.....



D)  $7x^2 - 5 = 5x^2 + 13$ .

.....  
.....

E)  $3x^2 - 5 = 43$ .

.....  
.....

F)  $\sqrt[3]{x} = 4$ .

.....  
.....

G)  $\sqrt[3]{x} = -\sqrt{4}$ .

.....  
.....

H)  $3x^3 - 5 = 76$ .

.....  
.....

I)  $(x + 3)^3 = 512$ .

.....  
.....

J)  $3x^3 - 4 = 2x^3 + 4$ .

.....  
.....

20) A square with area  $0.81 \text{ m}^2$ , find its perimeter.

.....  
.....

21) A cube with volume  $a^6$ , find the sum of all its edges when  $a = 6$  cm.

.....

.....

22) Find S.S for each of the following inequalities in  $\mathbb{N}$ ,  $\mathbb{Z}$  and  $\mathbb{Q}$ .

A)  $8b - 3b \leq 25$ .

.....

.....

B)  $4n - 2(n - 1) \geq 0$ .

.....

.....

C)  $3(7y - \frac{1}{3}) \leq 20y - 1$ .

.....

.....

23) Calculate the result of each of the following.

A)  $-4a(3a - 2)$ .

.....

.....

B)  $3x(7y - 2z)$ .

.....

.....

C)  $-3a^2b(3ab^2 - 5ab)$ .

.....

.....

D)  $3x^2(3x^3 - 2x^2 + 7x - 13)$ .

.....

.....

F)  $3(5x^2 + 3x - 2) - 15x^2$ .

.....

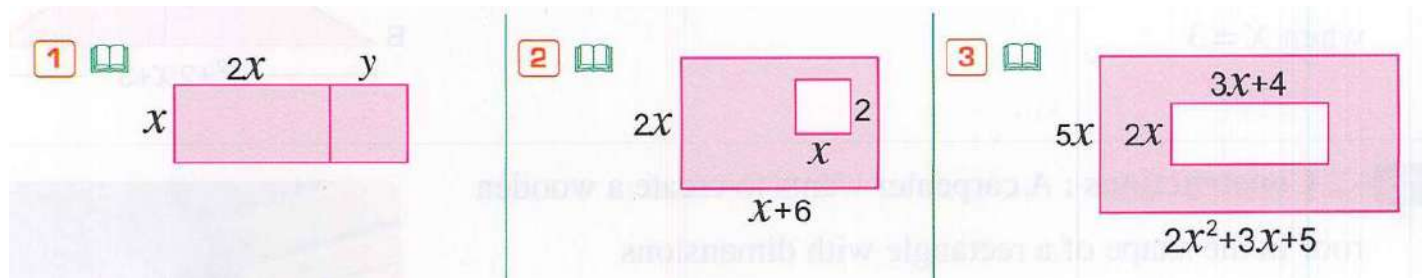
.....

G)  $4(3x^2 + 5x) - x(x^2 - 7x + 8)$ .

.....

.....

24) Find in the simplest form the area of the shaded part in each of the following.



25) Find the expansion of each of the following.

A)  $(x + y)^2$ .

.....

B)  $(3a - 2b)^2$ .

.....

C)  $(-2c - 2d)^2$ .

.....

D)  $(4m - 7n)^2$ .

.....

26) Find the product of each of the following.

A)  $(x + y)(x - y)$ .

.....

B)  $(3a + 2b)(3a - 2b)$ .

.....

C)  $(2c + 4d)(2c - 4d)$ .

.....

27) Find the product of each of the following in the simplest form.

A)  $(a - 2)(a^2 - 5a + 2)$ .

.....

.....

B)  $(2x + 3)(2 + 4x^2 - 5x)$ .

.....

.....

C)  $(a + b)^2 - (a + b)(a - b)$ .

.....

.....

D)  $(a - 2)(a + 2)(a^2 + 4)$ .

.....

.....

28) Find the solution set of each of the following in  $\mathbb{Q}$ .

A)  $(x - 2)(x + 2) = 5$ .

.....

.....

B)  $(7x - 4)(7x + 4) - 49x^2 + 2x = 6$ .

.....

.....

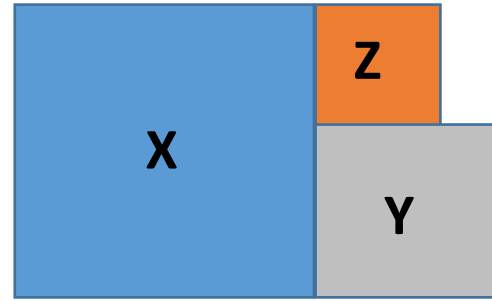
C)  $(2x - 5)^2 + 20x = 50$ .

.....

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29) Calculate the area of square X if the area of square Y is  $64 \text{ cm}^2$  and the area of square Z is  $25 \text{ cm}^2$ , then find the perimeter and the area of the whole figure.



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30) If X and Y are the two roots of the number Z, find.

A)  $X + Y = \dots\dots\dots$

B)  $XY + Z = \dots\dots\dots$

C)  $XY - Z = \dots\dots\dots$

D)  $XY \div Z = \dots\dots\dots$

E)  $X \div Y = \dots\dots\dots$

F)  $X \div Y + 1 = \dots\dots\dots$

G)  $X \div Y - 1 = \dots\dots\dots$

31) Find all integers which satisfy the two inequality  $5X - 2 > 3$  and  $7 - X \geq 3$ .

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.....

32) Find the smallest three consecutive even number and odd number greater than 60.

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33) Two positive numbers a and b if a is increased by b and their product increased by 9, find the number b.

.....

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.....

34) The volume of cuboid is  $24X^3 + 32 X^2Y \text{ cm}^3$  and its base is in the shape of square with a side length  $2X \text{ cm}$ , find the height of the cuboid then find the numerical value of height if  $X = 3$  and  $y = 2$ .

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35) Find the quotient of each of the following.

A)  $(12x^2 - 6x + 18x^3) \div 6x$ .

.....

B)  $(15x^5y^3 - 30x^3y^2 + 10x^3y^4) \div 5x^2y^2$ .

.....

C)  $[(3x - 4y)(3x + 4y)] \div (9x^2 - 16y^2)$ .

.....

36) A rectangle with area  $6m^3n - 3mn + 9mn^3 \text{ cm}^2$  and width  $3mn \text{ cm}$  find its length.

.....

.....

.....

37) A parallelogram with area  $15x^3y^2 - 20x^2y^3 - 25x^3y^3$  square unit and base length  $5a^2b^2$  find its height.

.....

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.....

38) Find the quotient of each of the following.

A)  $(x^2 + 9x + 20) \div (x + 4)$ .

B)  $(2x^2 - 11x + 15) \div (x - 3)$ .

C)  $(x^2 - 64) \div (x - 8)$ .

D)  $(25x^2 - 49) \div (5x + 7)$ .

E)  $(x^3 - 125) \div (x - 5)$ .

F)  $(-3x^2 + x^3 - x + 6) \div (x - 2)$ .

39) A rectangle with area  $3x + x^3 + 2 + 2x^2$  cm<sup>2</sup> and width  $x + 1$  cm find its length.

.....

.....

.....

40) Find the value of  $m$  which makes the expression  $2y^2 - 5y + m$  is divisible by  $y - 2$ .

.....

.....

.....

41) Find the value of  $m$  which makes the expression  $y^2 - 5y + m$  is divisible by  $y - 3$ .

.....

.....

.....

42) Find which will be the greater shape in area:

A) A square with diagonal length 12 cm or a rhombus with side length 8 cm and its height 9 cm.

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B) A trapezoid with middle base 11 cm and its height 6 cm or a rhombus with side length 13 cm and its height 5 cm.

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C) A square with diagonal length 14 cm or a trapezoid with bases lengths 14 cm and 10 cm and its height 8 cm.

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D) A rhombus with diagonal lengths 12 cm and 8 cm or a trapezoid with bases lengths 6 cm and 8 cm and its height 7 cm.

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43) If the ratio between rhombus diagonal lengths is 5 : 8 and one of its diagonal is 15 cm, Find its area.

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44) A piece of land in the shape of trapezoid whose area is  $4000 \text{ cm}^2$ , The ratio between its parallel bases and its height is 3 : 2 : 4 respectively, Find its height and its middle base.

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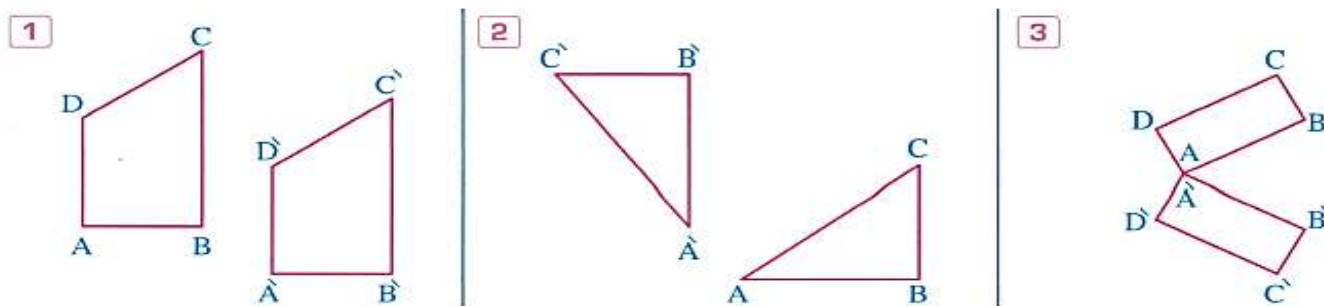
45) Draw an angle with measure  $60^\circ$  and bisect it.

46) an angle with measure  $140^\circ$  and bisect it into 4 equal angles.

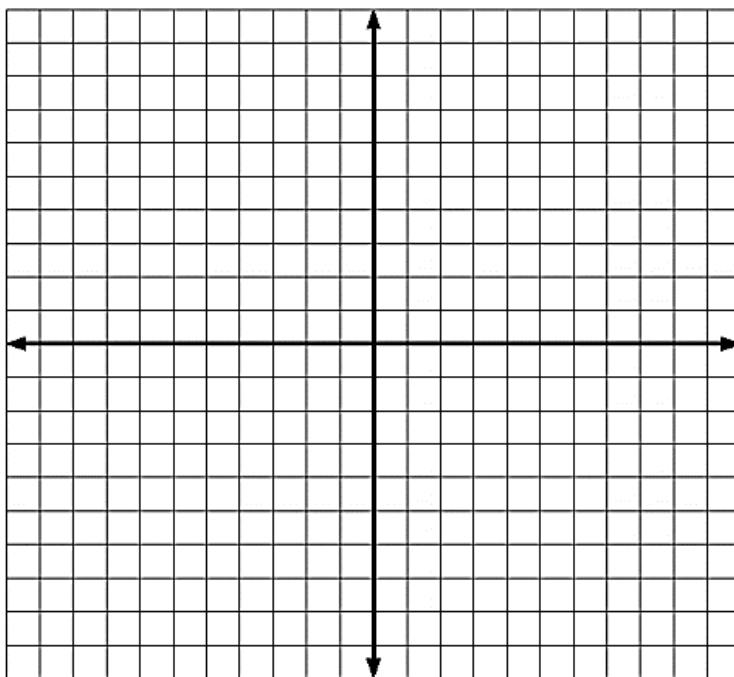
47) Draw an equilateral triangle with Side length 5 cm.

48) Draw triangle ABC in which  $AB = 6$  cm  
 $m(A) = 90^\circ$  and  $m(B) = 30^\circ$ .

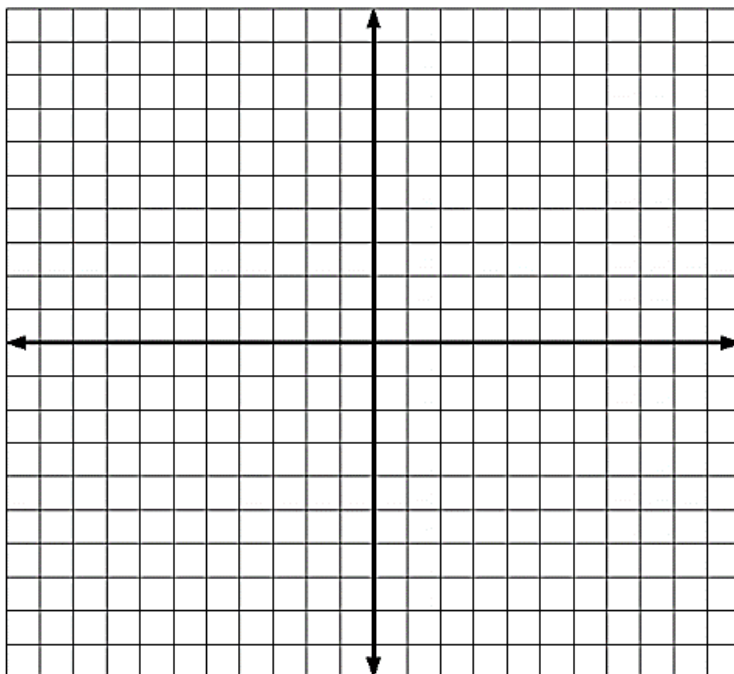
49) Describe the type of transformations in each of the following figures.



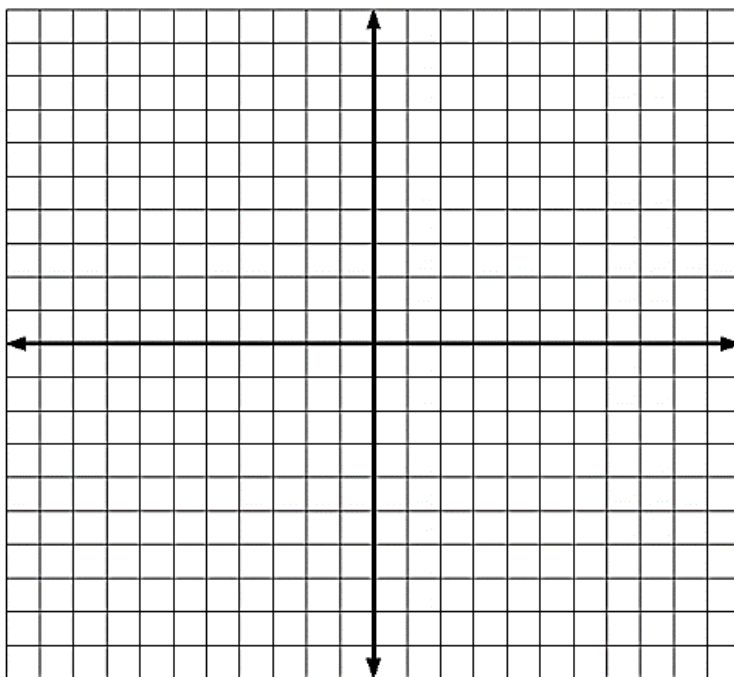
50) Draw the rectangle whose vertices are A (3 , 2), B (8 , 2), C (8 , 6) and D (3 , 6), Then draw the reflection One time by X axis and another time by Y axis.



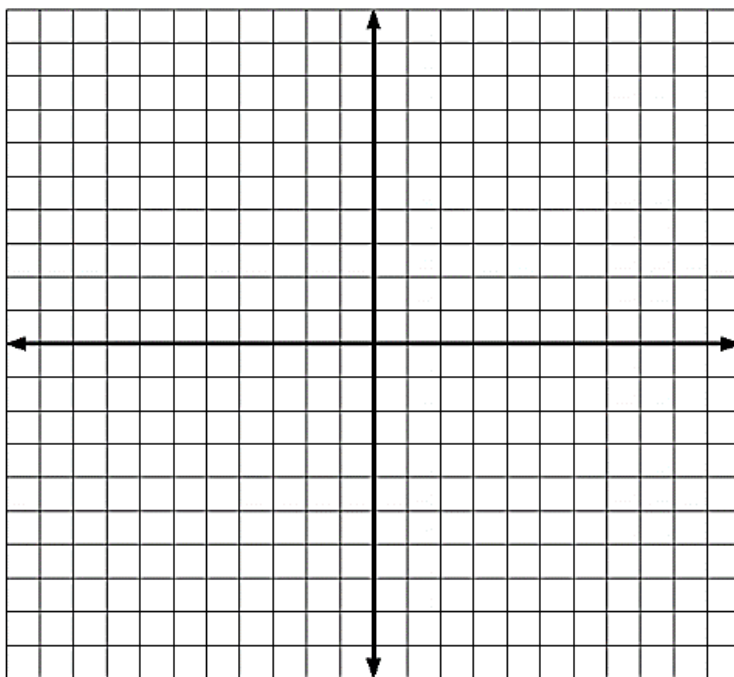
51) Draw the triangle ABC where vertices are A (3 , 1), B (1 , 4) and C (0 , 0), Then draw the image by reflection in the point C.



52) Draw the rectangle whose vertices are A (2 , 5), B (6 , 5), C (6 , 8) and D (2 , 8), Then draw the image by reflection in the origin point.



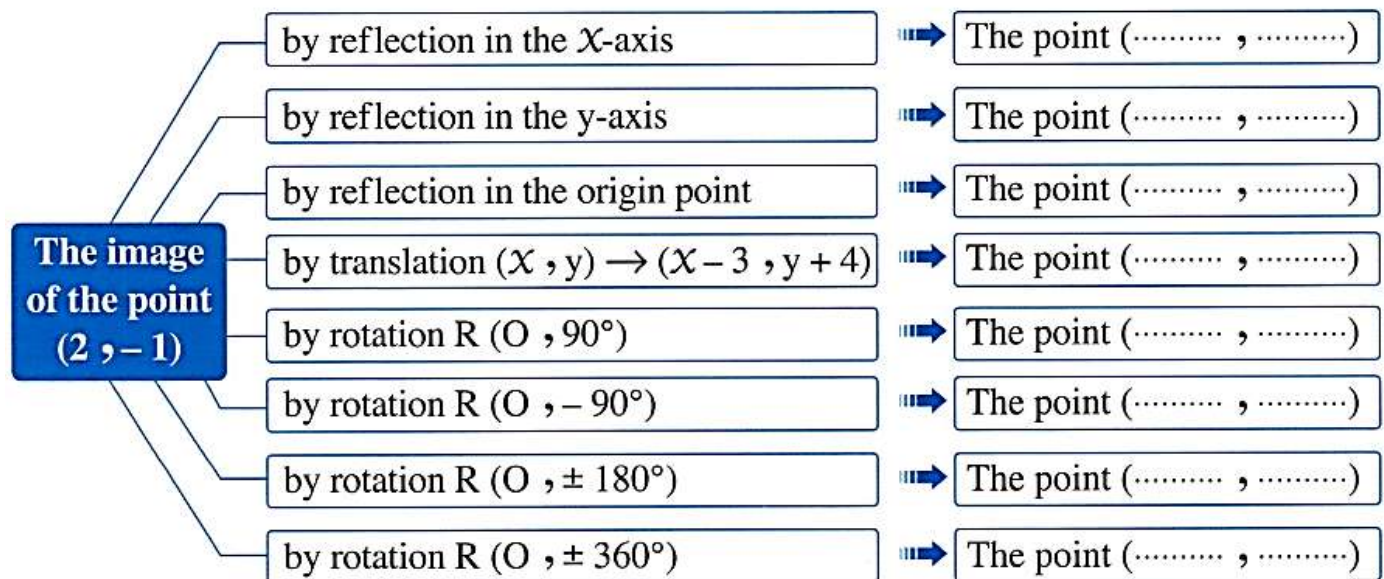
52) Draw the image of Triangle ABC Where A (5 , 2), B (4 , 5) and C (2 , 2) by translation (2 , -2).





53)

Complete the following diagram :



54)

Complete the following table :

	The point	Its image by rotation $R(O, \pm 180^\circ)$	Its image by rotation $R(O, 90^\circ)$
1	$(3, 2)$	.....	.....
2	$(-3, 4)$	.....	.....
3	$(-2, -1)$	.....	.....
4	.....	$(5, -2)$	.....
5	.....	.....	$(6, 0)$

55) Find which of the following is a random experiment and which is not.

A) Tossing a coin once and observing the upper face .....

B) Tossing a coin twice and observing the upper face .....

- C) Rolling a fair die once and observing the upper face .....
- D) Rolling a fair die 3 times and observing the upper face .....
- E) Drawing a ball from a set of identical balls .....
- F) Drawing a ball from a set of identical green, blue and red balls .....
- G) Drawing a ball from a set of identical black balls .....
- H) Drawing a card from a set of identical 10 cards .....
- I) Drawing a card from a set of identical 10 cards numbered from 1 to 10 .....
- J) Drawing a card from a set of different 10 cards numbered from 1 to 10 .....
- K) Drawing a card from a set of identical 10 cards with the same number.....
- L) Obtaining a 2 digit number from a set of {1 , 2 , 6} .....
- L) Obtaining a 2 digit number from a set of {3 , 8} .....

56) In the experiment of tossing a fair coin twice and observe what appears on the upper face, find the sample space, the event and the probability for each of the following.

S = .....

A) Event (A) is the event of appearance the head on the first toss.

.....

.....

B) Event (B) is the event of appearance the head on the second toss.

.....

.....

C) Event (C) is the event of appearance the tail on the first toss.

.....

.....

D) Event (D) is the event of appearance the tail on the second toss.

.....

.....

E) Event (E) is the event of appearance the head on the two toss.

.....

.....

F) Event (F) is the event of appearance the tail on the two toss.

.....

.....

G) Event (F) is the event of not head appears.

.....

.....

H) Event (F) is the event of not tail appears.

.....

.....

I) Event (F) is the event of not head or tail appears.

.....

.....

57) In the experiment of tossing a fair die once and observe what appears on the upper face, find the sample space and, the event and the probability for each of the following.

S = .....

A) Event (A) is the event of appearance an even number.

.....

.....

B) Event (B) is the event of appearance a prime number.

.....

.....

C) Event (C) is the event of appearance an even prime number.

.....

.....

D) Event (D) is the event of appearance an odd number.

.....

.....

E) Event (E) is the event of appearance a prime number.

.....

.....

F) Event (F) is the event of appearance an odd prime number.

.....

.....

H) Event (H) is the event of appearance an even or an odd number.

.....

.....

I) Event (I) is the event of appearance a 2 digit number.

.....

.....

J) Event (J) is the event of appearance a negative number.

.....

.....



K) Event (K) is the event of appearance a perfect square number.

.....

.....

L) Event (L) is the event of appearance a perfect cube number.

.....

.....

M) Event(M) is the event of appearance a number greater than 2 and less than 4

.....

.....

N) Event (N) is the event of appearance a number greater than 2 and less than 3

.....

.....

O) Event (O) is the event of appearance a 1 digit number.

.....

.....

P) Event (P) is the event of appearance a 3 digit number.

.....

.....

Q) Event (Q) is the event of appearance a fraction.

.....

.....

R) Event (R) is the event of appearance a decimal number.

.....

.....

S) Event (S) is the event of appearance a factor of 12.

.....

.....

T) Event (T) is the event of appearance a multiple of 2.

.....

.....

W) Event (W) is the event of appearance a positive number.

.....

.....

58) In the experiment of forming a 2 digit number from the set {2 , 3 , 4 , 5}, find the sample space, the event and the probability for each of the following.

S = .....

A) Event (A) is the event of forming an even number.

.....

.....

B) Event (B) is the event of forming an odd number.

.....

.....

C) Event (C) is the event of forming a prime number.

.....

.....

D) Event (D) is the event of forming an even prime number.

.....

.....

E) Event (E) is the event of forming an odd prime number.

.....

.....

F) Event (F) is the event of forming an even or an odd number.

.....

.....

G) Event (G) is the event of forming a positive number.

.....

.....

H) Event (H) is the event of forming a negative number.

.....

.....

I) Event (I) is the event of forming a both odd digits number.

.....

.....

J) Event (J) is the event of forming a both even digits number.

.....

.....

K) Event (K) is the event of forming a both prime digits number.

.....

.....

L) Event (L) is the event of forming a number its ones is greater than its tens

.....

.....

M) Event (M) is the event of forming a number its ones is less than its tens

.....  
.....

N) Event (N) is the event of forming a 2 digit number.

.....  
.....

O) Event (O) is the event of forming a number the sum of its two digit is an even number.

.....  
.....

P) Event (P) is the event of forming a number the sum of its two digit is an odd number.

.....  
.....

Q) Event (Q) is the event of forming a number the sum of its two digit is a prime number.

.....  
.....

R) Event (R) is the event of forming a number the sum of its two digit is 4.

.....  
.....

S) Event (S) is the event of forming a number the sum of its two digit is 7.

.....  
.....

T) Event (T) is the event of forming a number the sum of its two digit is 0.

.....  
.....



W) Event (W) is the event of forming a number the product of its two digit is 10

.....

.....

59) In the experiment of tossing a fair coin 200 times and head appears 96 times find the experimental probability of:

A) Head.

.....

B) Tail.

.....

C) Not head.

.....

D) Not tail.

.....

60) One card is selected randomly from 20 cards numbered from 10 to 30, Find the sample space and the probability of each of the following.

S = .....

A) Event (A) is the event of drawing an even number.

.....

.....

B) Event (B) is the event of drawing an odd number.

.....

.....

C) Event (C) is the event of drawing a prime number.

.....

.....

D) Event (D) is the event of drawing an even prime number.

.....

.....

E) Event (E) is the event of drawing an odd prime number.

.....

.....

F) Event (F) is the event of drawing an even or an odd number.

.....

.....

G) Event (G) is the event of drawing a positive number.

.....

.....

H) Event (H) is the event of drawing a negative number.

.....

.....

I) Event (I) is the event of drawing a both odd digits number.

.....

.....

J) Event (J) is the event of drawing a both even digits number.

.....

.....

K) Event (K) is the event of drawing a both prime digits number.

.....

.....

L) Event (L) is the event of drawing a number its ones is greater than its tens

.....

.....

M) Event (M) is the event of drawing a number its ones is less than its tens

.....

.....

N) Event (N) is the event of drawing a 2 digit number.

.....

.....

O) Event (O) is the event of drawing a number the sum of its two digit is an even number.

.....

.....

P) Event (P) is the event of drawing a number the sum of its two digit is an odd number.

.....

.....

Q) Event (Q) is the event of drawing a number the sum of its two digit is a prime number.

.....

.....

R) Event (R) is the event of drawing a number the sum of its two digit is 4.

.....

.....

S) Event (S) is the event of drawing a number the sum of its two digit is 3.

.....

.....

T) Event (T) is the event of drawing a number the sum of its two digit is 0.

.....

.....

61) A class contains 100 students 60 of them succeeded in math, 80 of them succeeded in science, 50 of them succeeded in both, find the probability of each of the following.

A) Event (A) the students whose succeed in math.

.....

B) Event (B) the students fail in math.

.....

C) Event (C) the students succeed in science.

.....

D) Event (D) the students fail in science.

.....

E) Event (E) the students succeed in both.

.....

62) The following table shows that how the pupils goes to school.

Means of transport	Bicycle	Bus	Private car	On foot
The number	12	16	8	12

If the pupil is selected randomly, what is the probability of what the pupil:

A) Event (A) is the event of the pupil goes to school by bus.

.....

B) Event (B) is the event of the pupil goes to school on foot.

.....

C) Event (C) is the event of the pupil goes to school by bicycles.

.....



D) Event (D) is the event of the pupil goes to school by private car.

.....

E) Event (E) is the event of the pupil doesn't go to school by private car.

.....

F) Event (F) is the event of the pupil doesn't go to school by bicycles.

.....

G) Event (G) is the event of the pupil doesn't go to school on foot.

.....

H) Event (H) is the event of the pupil doesn't go to school by bus.

.....

63) A fair die was rolled 300 times and the number appearing on the upper face was observed and it's as the following table:

The number	1	2	3	4	5	6
Number of appearing	56	38	46	56	50	54

A) Event (A) is the event of appearance of the number 3.

.....

B) Event (B) is the event of appearance of the number 5.

.....

C) Event (C) is the event of non-appearance of the number 3.

.....

D) Event (D) is the event of non-appearance of the number 2 and 5.

.....

E) Event (E) is the event of appearance of the even numbers.

.....

F) Event (F) is the event of non-appearance of the number 6.

.....

G) Event (G) is the event of non-appearance of the number 0.

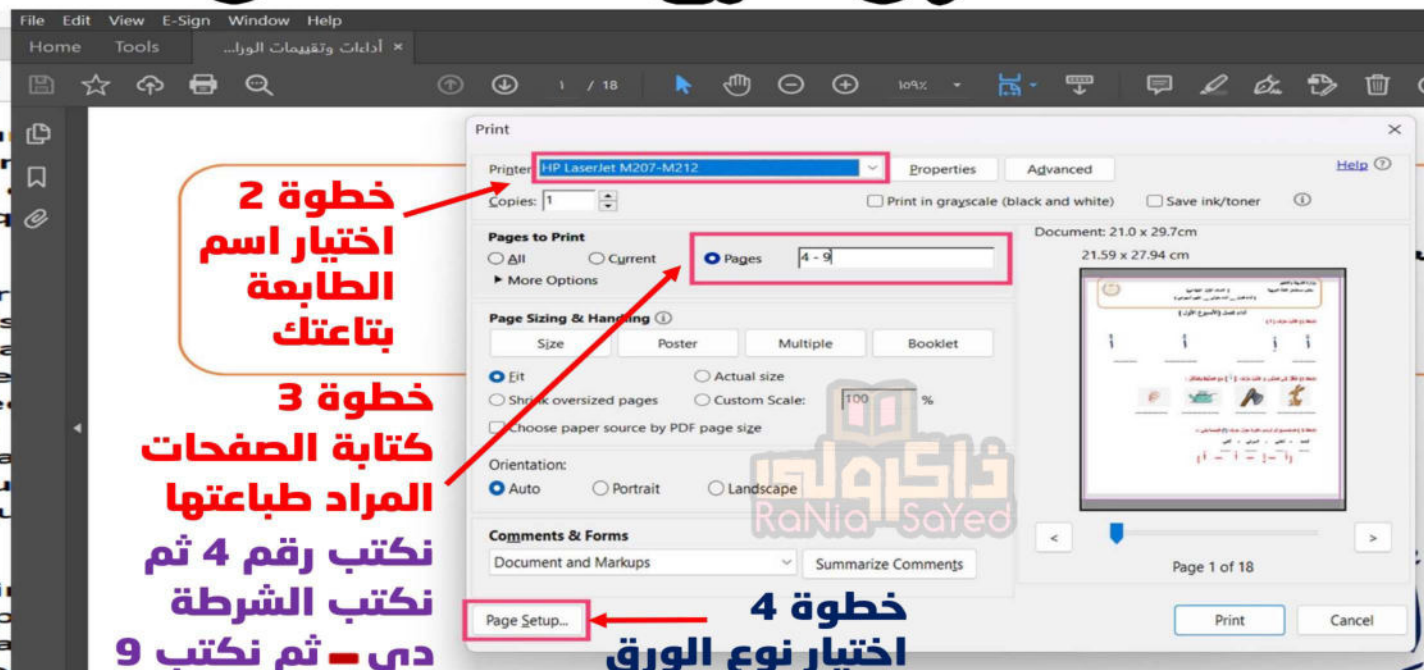
.....

# كيفية طباعة صفحات معينة من ملف معين

## مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



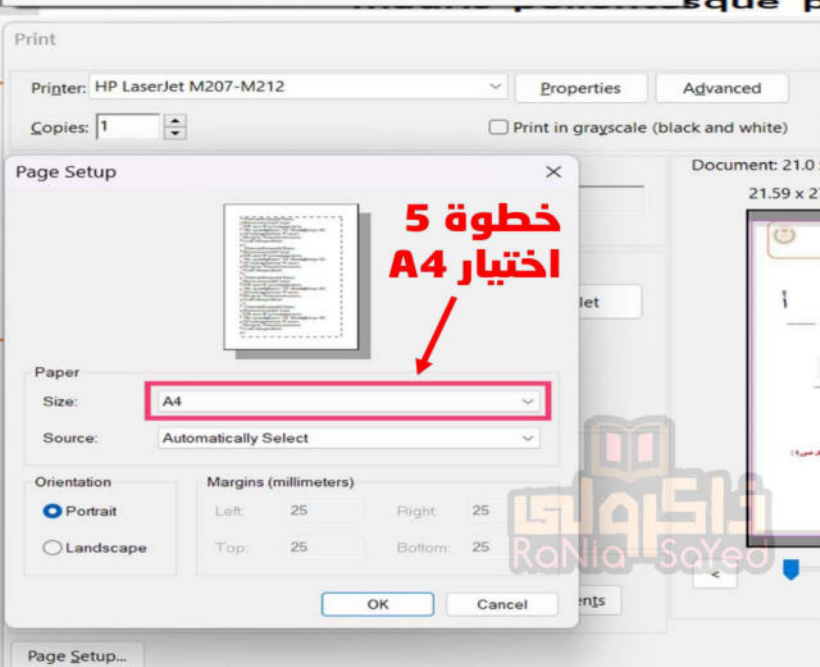
خطوة 1



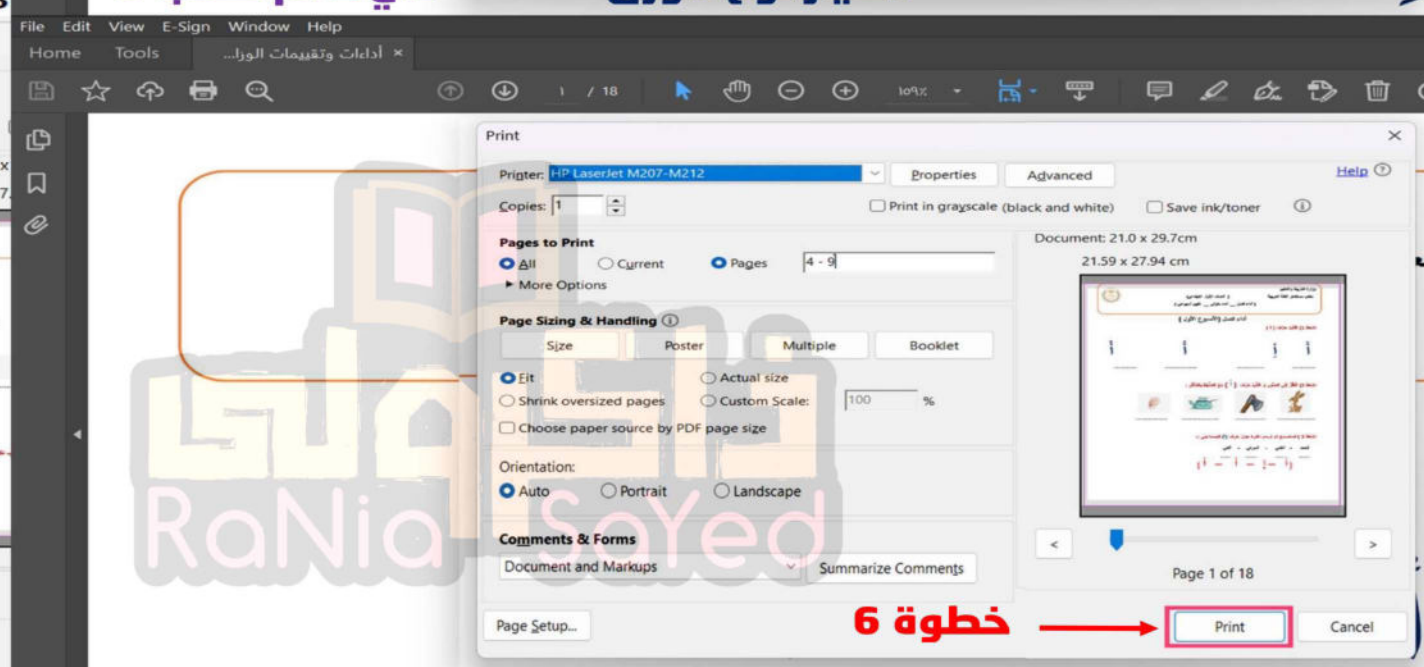
خطوة 2  
اختيار اسم  
الطابعة  
بتاعتك

خطوة 3  
كتابة الصفحات  
المراد طباعتها  
نكتب رقم 4 ثم  
نكتب الشرطة  
دي - ثم نكتب 9

خطوة 4  
اختيار نوع الورق



خطوة 5  
اختيار A4



خطوة 6